

Rec. May 11
from Oct. 9011

Gov. Doe
ONT.
L
Ontario - Legislative Assembly.

SESSIONAL PAPERS

VOL. L.—PART VII.

FOURTH SESSION

OF THE

FOURTEENTH LEGISLATURE

OF THE

PROVINCE OF ONTARIO

SESSION 1918

TORONTO:

Printed and Published by A. T. WILGRESS, Printer to the King's Most Excellent Majesty

1918

155-060
14/5/20

Printed by
THE RYERSON PRESS

LIST OF SESSIONAL PAPERS

PRESENTED TO THE HOUSE DURING THE SESSION.

TITLE.	No.	REMARKS.
Accounts, Public, 1917	1	<i>Printed.</i>
Agricultural College, Report	30	"
Agricultural and Experimental Union, Report	32	"
Agricultural Societies, Report	42	"
Agriculture, Department of, Report	29	"
Archivist, Report	52	"
Auditor, Provincial, Report	54	"
Bee-Keepers, Report	37	<i>Printed.</i>
Births, Marriages and Deaths, Report.....	20	"
Birth, Marriages and Deaths, number of copies of Report published, etc.	87	<i>Not Printed.</i>
Budget Speech	80	<i>Printed.</i>
Burwash Farm, Coatsworth's Report	56	<i>Not Printed.</i>
Canadian Copper Company, lands patented to.....	73	<i>Not Printed.</i>
Children, Neglected, Report	27	<i>Printed.</i>
Civil Servants, employed on Farms.....	86	<i>Not Printed.</i>
Corn Growers' Association, Report.....	35	<i>Printed.</i>
Dairymen's Association, Report.....	38	<i>Printed.</i>
Division Courts, Report	5	"
Education, Report	17	<i>Printed.</i>
Education, Orders-in-Council	66	<i>Not Printed.</i>
Elections, Memorandum <i>in re</i>	51	"
Entomological Society, Report.....	36	<i>Printed.</i>
Estimates	2	"
Factories, Report (<i>not presented</i>).....	47	<i>Part of No. 16</i>
Farmers' Institutes, Report (<i>not presented</i>).....	40	<i>Dropped.</i>
Feeble-Minded, Report (<i>not presented</i>).....	24	<i>Part of No. 23</i>
Forest Reserves, Sections over-run by fire.....	60	<i>Not Printed.</i>
Friendly Societies, Report.....	11	<i>Printed.</i>
Fruit Growers, Report	44	"
Fur-bearing Animals, Pelts of, etc.....	84	<i>Not Printed.</i>
Game and Fish, Report.....	14	<i>Printed.</i>
Gaols, Prisons and Reformatories, Report.....	26	"
Grand River, correspondence <i>re</i> Floods.....	75	<i>Not Printed.</i>

TITLE.	No.	REMARKS.
Health, Report of Board of.....	21	<i>Printed.</i>
Highway Improvement, Report.....	15	"
Hodge, John E., Lands granted to.....	71	<i>Not Printed.</i>
Hodgins, Justice, Report.....	57	<i>Printed.</i>
Horticultural Experiment Station, Vineland, Report....	45	"
Horticultural Societies, Report	43	"
Hospitals and Charities, Report.....	25	"
Hospitals, Refuges, Orphanages, Orders-in-Council.....	83	<i>Not Printed.</i>
Hydro-Electric Power Commission, Report.....	49	<i>Printed.</i>
Hydro-Radial, Toronto to N. Falls, Order-in-Council....	58	<i>Not Printed.</i>
Idiots and Epileptics, Report.....	23	<i>Printed.</i>
Industrial Farm, Burwash, Report.....	56	<i>Not Printed.</i>
Industries, Bureau of, Report.....	46	<i>Printed.</i>
Insane, Hospitals for, Report.....	22	"
Insurance, Report	10	"
Kingston Asylum, correspondence re Land Purchase....	77	<i>Not Printed.</i>
Labour, Trades and, Report.....	16	<i>Printed.</i>
Lands, Forests and Mines, Report.....	3	"
Legal Offices, Report.....	6	"
Librarian, Report	53	<i>Not Printed.</i>
Liquor License Acts, Report.....	28	<i>Printed.</i>
Live Stock Association, Report.....	39	"
Loan Corporations, Statements.....	12	"
Mail Delivery, Contract for.....	70	<i>Not Printed.</i>
Medical Education, Hodgins Report.....	57	<i>Printed.</i>
Mines, Report	4	"
Mines Act, Patents granted in Sudbury.....	61	<i>Not Printed.</i>
Moyes, John W., Correspondence.....	65	"
Municipal Affairs, Report.....	82	"
Municipal Auditor, Report.....	8	<i>Printed.</i>
Natural Gas, situation in Kent.....	78	<i>Printed.</i>
Ontario Parole Board	79	<i>Not Printed.</i>
Ontario, Population and Public Debt.....	63	"
Ontario Railway and Municipal Board, Report.....	50	<i>Printed.</i>
Parole, Ontario Board	79	<i>Not Printed.</i>
Prisons and Reformatories, Report	26	<i>Printed.</i>
Provincial Auditor, Report.....	54	"
Provincial Municipal Auditor, Report.....	8	"
Public Accounts, 1917	1	"

TITLE.	No.	REMARKS.
Public Highways, Report.....	15	<i>Printed.</i>
Public Works, Report.....	13	"
Queen Victoria Niagara Falls Park, Report.....	9	<i>Printed.</i>
Railway and Municipal Board, Report.....	50	<i>Printed.</i>
Registrar-General, Report	20	"
Registry Offices, Report.....	7	"
Secretary and Registrar, Report.....	19	<i>Printed.</i>
Seymour Power Company, purchase of.....	62	<i>Not Printed.</i>
Soldiers' Aid Commission, Report.....	85	"
Stallion Enrolment Board, Report.....	33	<i>Printed.</i>
Statute distribution	67	<i>Not Printed.</i>
Sudbury District, Lands Patented in.....	69	"
Sudbury Nickel, Ltd., Lands Patented to.....	72	"
Surrogate Courts, Orders-in-Council.....	68	"
Taylor, Archibald, correspondence.....	64	<i>Not Printed.</i>
Telephone Systems, Statistical Information	81	<i>Printed.</i>
Temiskaming and N. O. Railway, Report.....	48	"
Toronto University, Report	18	"
Vegetable Growers' Association, Report.....	34	<i>Printed.</i>
Venereal Diseases, Hodgins Report.....	74	"
Veterinary College, Report	31	"
Vineland Station, Report.....	45	"
Water-Powers, Leases issued.....	59	<i>Not Printed.</i>
Women's Institutes, Report.....	41	<i>Printed.</i>
Workmen's Compensation Board, Report.....	55	"
Workmen's Compensation Board, correspondence <i>re</i> Taylor	64	<i>Not Printed.</i>
Workmen's Compensation Board, amount paid in by Corporations	76	"



LIST OF SESSIONAL PAPERS

Arranged in Numerical Order with their Titles at full length;
the dates when presented to the Legislature; the name
of the Member who moved the same, and
whether ordered to be Printed or not.

CONTENTS OF PART I.

- | | |
|-------|--|
| No. 1 | Public Accounts of the Province for the year ending 31st October, 1917. Presented to the Legislature, February 12th, 1918. <i>Printed.</i> |
| No. 2 | Estimates—Supplementary, for service of the Province for the year ending 31st October, 1918. Presented to the Legislature, February 12th, 1918. <i>Printed.</i> Further Supplementary. Presented to the Legislature, February 27th, 1918. <i>Printed.</i> Estimates for the year ending 31st October, 1919. Presented to the Legislature, March 8th, 1918. <i>Printed.</i> |

CONTENTS OF PART II.

- | | |
|-------|--|
| No. 3 | Report of the Minister of Lands, Forests and Mines for the year 1917. Presented to the Legislature, March 8th, 1918. <i>Printed.</i> |
| No. 4 | Report of the Bureau of Mines for the year 1917. Presented to the Legislature, March 15th, 1918. <i>Printed.</i> |

CONTENTS OF PART III.

- | | |
|--------|---|
| No. 5 | Report of the Inspector of Division Courts for the year 1917. Presented to the Legislature, February 26th, 1918. <i>Printed.</i> |
| No. 6 | Report of the Inspector of Legal Offices for the year 1917. Presented to the Legislature, March 8th, 1918. <i>Printed.</i> |
| No. 7 | Report of the Inspector of Registry Offices for the year 1917. Presented to the Legislature, March 1st, 1918. <i>Printed.</i> |
| No. 8 | Report of the Provincial Municipal Auditor for the year 1917. Presented to the Legislature, March 21st, 1918. <i>Printed.</i> |
| No. 9 | Report of the Queen Victoria Niagara Falls Park Commission, for the year 1917. Presented to the Legislature, February 25th, 1918. <i>Printed.</i> |
| No. 10 | Report of the Inspector of Insurance for the year 1917. Presented to the Legislature, February 26th, 1918. <i>Printed.</i> |

- No. 11 Report of the Registrar of Friendly Societies for the year 1917. Presented to the Legislature, February 26th, 1918. *Printed.*

CONTENTS OF PART IV.

- No. 12 Loan Corporations—Financial Statements made by Building Societies, Loan Companies, Loaning, Land and Trust Companies, for the year 1917. Presented to the Legislature, February 26th, 1918. *Printed.*
- No. 13 Report of the Minister of Public Works for the year 1917. Presented to the Legislature, February 26th, 1918. *Printed.*
- No. 14 Report of the Department of Game and Fisheries for the year 1917. Presented to the Legislature, March 12th, 1918. *Printed.*
- No. 15 Report on Highway Improvement for the year 1917. Presented to the Legislature, March 1st, 1918. *Printed.*
- No. 16 Report of the Trades and Labour Branch for the year 1917. Presented to the Legislature, March 7th, 1918. *Printed.*

CONTENTS OF PART V.

- No. 17 Report of the Minister of Education for the year 1917. Presented to the Legislature, March 7th, 1918. *Printed.*
- No. 18 Report of the Board of Governors of the University of Toronto for the year 1917. Presented to the Legislature, February 6th, 1918. *Printed.*
- No. 19 Report of the Secretary and Registrar of the Province for the year 1917. Presented to the Legislature, March 1st, 1918. *Printed.*
- No. 20 Report of the Registrar General on Births, Marriages and Deaths for the year 1917. Presented to the Legislature, February 26th, 1918. *Printed.*

CONTENTS OF PART VI.

- No. 21 Report of the Provincial Board of Health for the year 1917. Presented to Legislature, February 20th, 1918. *Printed.*
- No. 22 Report upon the Hospitals for the Insane for the year 1917. Presented to the Legislature, March 18th, 1918. *Printed.*
- No. 23 Report upon the Hospitals for Idiots and Epileptics, at Orillia and Woodstock, for the year 1917. Presented to the Legislature, March 18th, 1918. *Printed.*

- | | |
|--------|--|
| No. 24 | Report upon the Feeble-minded, in Ontario, for the year 1917.
<i>Printed. Part of No. 23.</i> |
| No. 25 | Report upon Hospitals and Charitable Institutions of the Province
for the year 1917. Presented to the Legislature, March 18th,
1918. <i>Printed.</i> |
| No. 26 | Report upon the Common Gaols, Prisons and Reformatories of the
Province for the year 1917. Presented to the Legislature,
March 18th, 1918. <i>Printed.</i> |
| No. 27 | Report upon the Neglected and Dependent Children of the Province
for the year 1917. Presented to the Legislature, March 20th,
1918. <i>Printed.</i> |
| No. 28 | Report on the operation of the Liquor License Acts in the Province
for the year 1918. Presented to the Legislature, March 7th,
1918. <i>Printed.</i> |
| No. 29 | Report of the Minister of Agriculture, for the year 1917. Pre-
sented to the Legislature, March 8th, 1918. <i>Printed.</i> |
| No. 30 | Report of the Ontario Agricultural College and Experimental Farm
for the year 1917. Presented to the Legislature, March 8th,
1918. <i>Printed.</i> |
| No. 31 | Report of the Ontario Veterinary College for the year 1917. Pre-
sented to the Legislature, March 8th, 1918. <i>Not printed.</i> |
| No. 32 | Report of the Ontario Agricultural and Experimental Union for the
year 1917. Presented to the Legislature, March 8th, 1918.
<i>Printed.</i> |
| No. 33 | Report of the Stallion Enrolment Board for the year 1917. Pre-
sented to the Legislature, March 8th, 1918. <i>Printed.</i> |
| No. 34 | Report of the Ontario Vegetable Growers' Association for the year
1917. Presented to the Legislature, March 8th, 1918. <i>Printed.</i> |
| No. 35 | Report of the Ontario Corn Growers' Association for the year 1917.
Presented to the Legislature, March 8th, 1918. <i>Printed.</i> |

CONTENTS OF PART VII.

- | | |
|--------|--|
| No. 36 | Report of the Entomological Society of Ontario for the year 1917.
Presented to the Legislature, March 8th, 1918. <i>Printed.</i> |
| No. 37 | Report of the Bee-Keepers' Association of Ontario for the year 1917.
Presented to the Legislature, March 8th, 1918. <i>Printed.</i> |
| No. 38 | Report of the Dairymen's Association of Ontario for the year 1917.
Presented to the Legislature, March 28th, 1918. <i>Printed.</i> |

- | | |
|--------|---|
| No. 39 | Report of the Live Stock Association of Ontario for the year 1917.
Presented to the Legislature, March 11th, 1918. <i>Printed.</i> |
| No. 40 | Report of the Farmers' Institutes of Ontario for the year 1917.
<i>Dropped.</i> |
| No. 41 | Report of the Women's Institutes of Ontario for the year 1917.
Presented to the Legislature, March 11th, 1918. <i>Printed.</i> |
| No. 42 | Report of the Agricultural Societies of Ontario for the year 1917.
Presented to the Legislature, March 8th, 1918. <i>Printed.</i> |
| No. 43 | Report of the Horticultural Societies of Ontario for the year 1917.
Presented to the Legislature, March 8th, 1918. <i>Printed.</i> |
| No. 44 | Report of the Fruit Growers' Association of Ontario for the year
1917. Presented to the Legislature, March 8th, 1918. <i>Printed.</i> |
| No. 45 | Report of the Vineland Horticultural Experiment Station for the
year 1917. Presented to the Legislature, March 8th, 1918.
<i>Printed.</i> |
| No. 46 | Report of the Bureau of Industries of the Province for the year
1917. Presented to the Legislature, March 8th, 1918. <i>Printed.</i> |

CONTENTS OF PART VIII.

- | | |
|--------|--|
| No. 47 | Report of the Factories Inspectors of the Province for the year 1917.
Not presented. <i>Printed. Part of No. 16.</i> |
| No. 48 | Report of the Temiskaming and Northern Ontario Railway Com-
mission for the year 1917. Presented to the Legislature,
March 20th, 1918. <i>Printed.</i> |
| No. 49 | Report of the Hydro-Electric Power Commission for the year 1917.
Presented to the Legislature, March 20th, 1918. <i>Printed.</i> |

CONTENTS OF PART IX.

- | | |
|--------|---|
| No. 50 | Report of the Ontario Railway and Municipal Board for the year
1917. Presented to the Legislature, March 11th, 1918. <i>Printed.</i> |
| No. 51 | Memorandum <i>re</i> Elections—Presented to the Legislature, February
5th, 1918. <i>Not printed.</i> |
| No. 52 | Report of the Provincial Archivist for the year 1917. Presented
to the Legislature, March 1st, 1918. <i>Printed.</i> |
| No. 53 | Report of the Librarian on the State of the Library. Presented to
the Legislature, February 7th, 1918. <i>Not printed.</i> |
| No. 54 | Report of the Provincial Auditor for the year 1917. Presented to
the Legislature, February 21st, 1918. <i>Printed.</i> |

- | | |
|--------|---|
| No. 55 | Report of the Ontario Workmen's Compensation Board for the year 1917. Presented to the Legislature, March 21st, 1918. <i>Printed.</i> |
| No. 56 | Report of Commissioner Coatsworth <i>re</i> Industrial Farm investigation at Burwash, Ontario. Presented to the Legislature, February 6th, 1918. <i>Not printed.</i> |
| No. 57 | Report and supporting statements on Medical Education in Ontario, by Mr. Justice Hodgins, Commissioner. Presented to the Legislature, February 6th, 1918. <i>Printed.</i> |
| No. 58 | Return to an Address to His Honour the Lieutenant-Governor, of the 20th March, 1917, praying that he will cause to be laid before the House—1. Copies of all Orders-in-Council approving of the agreement for the construction of the Hydro Radial Line from Toronto to Niagara Falls through Hamilton. 2. Copies of all reports, engineers' and otherwise, in reference to the cost and prospective earnings of the said railway furnished by the Hydro-Electric Power Commission to the Government. 3. Copies of all correspondence passing between the Hydro-Electric Power Commission and the Government in reference to the passing of the said Orders-in-Council and the construction of the said line. Mr. Marshall. Presented to the Legislature, February 6th, 1918. <i>Not printed.</i> |
| No. 59 | Return to an Order of the House of the 26th March, 1917, for a Return shewing:—1. How many leases of water-powers were issued by the Ontario Government in each of the years 1912, 1913, 1914, 1915, 1916 and down to March 1st, 1917. 2. To whom, in what districts, and for what periods of time were such leases of water-powers issued. Mr. Dewart. Presented to the Legislature, February 6th, 1918. <i>Not printed.</i> |
| No. 60 | Return to an Order of the House of the 7th March, 1917, for a Return shewing:—1. What areas of land of the Government of the Province of Ontario in Forest Reserve sections were over-run by fire in the years 1910, 1911, 1912, 1913, 1914, 1915 and 1916 respectively. Mr. Ducharme. Presented to the Legislature, February 6th, 1918. <i>Not printed.</i> |
| No. 61 | Return to an Order of the House of the 7th March, 1917, for a Return shewing:—1. How many patents of lands have been issued, under the Mines Act, in the District of Sudbury, to corporations, since February 8, 1905, in addition to the six patents of land issued to the Canada Copper Company on the 13th day of December, 1916. 2. To what corporations were such patents issued; on what dates; and in what townships were the lands situated. 3. Were the regulations with regard to timber preservation taken advantage of by those who staked claims, and were they so relieved from doing the necessary |

development work required by the Mining Law of Ontario. If so, in what cases. Mr. *Dewart*. Presented to the Legislature, February 6th, 1918. *Not printed*.

- No. 62 Return to an Order of the House of the 23rd February, 1917, for a Return of Copies—1. All correspondence passing between the Government of Ontario, or any member, officer, or official thereof, and the Ontario Hydro-Electric Power Commission or any officer or official thereof, in reference to the purchase or acquirement of the properties of the Seymour Power Company. 2. All reports made by the Hydro-Electric Power Commission, or any member, officer or official thereof, in reference to the purchase of the properties of the said Seymour Power Company. 3. All valuations made by or on behalf of the Hydro-Electric Power Commission of the properties of the said Seymour Power Company. 4. All correspondence between the Government of the Province of Ontario, or any member, officer, or official thereof, and the Government of the Dominion of Canada, or any officer, or official thereof, in reference to the purchase or acquirement of the properties of the Seymour Power Company. Mr. *Carter*. Presented to the Legislature, February 6th, 1918. *Not printed*.
- No. 63 Return to an Order of the House of the 16th March, 1917, for a Return shewing:—1. What was the population of Ontario for each of the years from the year 1900 to 1916 inclusive. 2. What was the public debt of the Province of Ontario from the year 1900 to the year 1916 inclusive. 3. What was the public debt *per capita* for each of the years from the year 1900 to the year 1916 inclusive. Mr. *Pinard*. Presented to the Legislature, February 6th, 1918. *Not printed*.
- No. 64 Return to an Order of the House of the 14th March, 1917, for a Return of copies of all documents and correspondence passing between the Workmen's Compensation Board or any member, officer or employee thereof; the personal representatives of Archibald Taylor (deceased), late of Sarnia, Ont., or any person or persons acting on their behalf, and the Grand Trunk Railway Company or any employee or officer thereof. Mr. *Elliott*. Presented to the Legislature, February 6th, 1918. *Not printed*.
- No. 65 Return to an Order of the House of the 5th March, 1917, for a Return of—1. Copies of all correspondence, reports and documents in any way relating to the attempted arrest of one John W. Moyes. 2. What steps have been taken to effect such arrest and if it is the intention of the Government to continue its efforts to bring about the arrest of the said John W. Moyes. Mr. *Proudfoot*. Presented to the Legislature, February 6th, 1918. *Not printed*.

-
- | | |
|--------|---|
| No. 66 | Copies of Regulations and Orders-in-Council as required by Section 27 of the Department of Education Act. Presented to the Legislature, February 13th, 1918. <i>Not printed.</i> |
| No. 67 | Statement <i>re</i> distribution of Revised and Sessional Statutes for the year 1917. Presented to the Legislature, February 20th, 1918. <i>Not printed.</i> |
| No. 68 | Copies of Orders-in-Council in accordance with the provisions of ss. 6 of section 78 of the Surrogate Courts Act. Presented to the Legislature, February 26th and March 21st, 1918. <i>Not printed.</i> |
| No. 69 | Return to an Order of the House, of the 25th February, 1918, for a Return shewing—1. What lands, if any, have been patented in the District of Sudbury, in the year 1917, to the following persons, respectively, Albert Harvey, Rinaldo McConnell, Alex. H. Beath and R. J. Tough. 2. On what dates were the said lands, if any, patented. 3. Have any terms been imposed in the Patents granted for any such lands so as to insure the treatment and refining of the Nickel Ores mined upon these properties in the Province of Ontario. 4. Is there any agreement or obligation on the part of the Company in question to which any such lands have been granted, which obligates them to carry on mining or other obligations, in the Province of Ontario, and if so what are the agreements or obligations and within what time limit must they be performed. Mr. Dewart. Presented to the Legislature, February 26th, 1918. <i>Not printed.</i> |
| No. 70 | Contract of Agreement made with the Mounce Cartage Company, Limited, relating to the delivery of mail matter to and from the Toronto Post Office and the Parliament Buildings. Presented to the Legislature, February 27th, 1918. <i>Not printed.</i> |
| No. 71 | Return to an Order of the House of the 26th February, 1918, for a Return shewing—1. What lands in the District of Sudbury, if any, have been granted to "John E. Hodge," of Minneapolis, Minn., in the U.S.A., since the 1st of March, 1917. 2. Is the said "John E. Hodge" connected with or representing any corporate interests, to the knowledge of the Government, and if so, what is the name of the corporation, and who are its officers. 3. Have any terms been imposed in such patents as have been granted, so as to ensure the treatment and the refining of the nickel ores mined upon this property in the Province of Ontario. 4. Is there any agreement, or obligation on the part of the grantees in question, obligating them to carry on mining or other operations in the Province of Ontario, and if so what are the agreements and obligations, and within what time limit must they be performed. Mr. Dewart. Presented to the Legislature, March 1st, 1918. <i>Not printed.</i> |

- No. 72 Return to an Order of the House of the 26th February, 1918, for a Return shewing—1. What lands, if any, have been patented in the District of Sudbury to "Sudbury Nickel, Limited," in the year 1917, and on what dates. 2. When was this company incorporated, with what share capital, and with what provisional directors. 3. What stock of the company has been issued (a) for cash; (b) for transfer of properties or claims, and to whom. 4. Who are the present directors of the company. 5. Have any terms been imposed in the patents granted for any such lands, so as to ensure the treatment and refining of the nickel ores mined upon any such properties in the Province of Ontario. 6. Is there any agreement or obligation on the part of the company in question to whom any such lands have been granted, which obligates them to carry on mining or other operations in the Province of Ontario, and if so what are the agreements or obligations, and within what time limit must they be performed. Mr. *Dewart*. Presented to the Legislature, March 1st, 1918. *Not printed*.
- No. 73 Return to an Order of the House of the 26th February, 1918, for a Return shewing—1. What lands, if any, have been patented to the Canadian Copper Company in 1917, and at what dates. 2. Has the Government attached any restrictions to the patents granted to the said company, or taken any steps to ensure that the nickel recovered from the properties so granted shall be refined or otherwise treated in the Province of Ontario. Mr. *Dewart*. Presented to the Legislature, March 1st, 1918. *Not printed*.
- No. 74 Interim Report on Venereal Diseases, with copy of an Act for the Prevention of Venereal Disease, by Mr. Justice Hodgins, Commissioner. Presented to the Legislature, March 5th, 1918. *Printed*.
- No. 75 Return to an Order of the House of the 7th March, 1918, for a Return shewing—1. Copies of all correspondence between the Minister of Public Works, or any other members of the Government, or any official thereof, and any person or persons, and copies of any reports received by the Government, relating to the floods on the Grand River, since the return brought down by the House on the 3rd of April, 1913, being a preliminary study of the subject by H. G. Acres of the Hydro-Electric Power Commission. Mr. *Ham*. Presented to the Legislature, March 8th, 1918. *Not printed*.
- No. 76 Return to an Order of the House of 25th February, 1918, for a Return shewing—1. What was the amount paid in by each of the following corporations in the year 1917, or the last period of twelve months for which returns are made, for all purposes under the Workmen's Compensation Act, namely: Massey-

- Harris Co., Ltd., John Inglis Co., Ltd., Toronto Carpet Mfg Co., Harris Abattoir Co., Ltd., Park, Blackwell Co., Ltd., Dominion Radiator Co., Ltd. 2 What amount was paid out in the same period under the Act to the employees of each of the said companies, for claims made for injuries during the said period. 3. What amount, if any, was held, under the Act, for further payments on claims made in the same period for injuries by such employees of each of the said companies. Mr. *Dewart*. Presented to the Legislature, March 11th, 1918. *Not printed*.
- No. 77 Return to an Order of the House of the 27th February, 1918, for a Return shewing—1. Copies of all correspondence between the Government, or any officer or official thereof, and any person or persons, in reference to the purchase of additional land and the erection of buildings thereon, and all items in connection therewith, referred to in Vote No. 156, relating to the Hospital for the Insane, Kingston, appearing on Page 35 of the Supplementary Estimates for the Fiscal Year ending October 31st, 1918. Mr. *Dewart*. Presented to the Legislature, March 11th, 1918. *Not printed*.
- No. 78 Memorandum on the Natural Gas Situation in Kent, Essex and Lambton. Presented to the Legislature, March 15th, 1918. *Printed*.
- No. 79 Report on the Ontario Parole Board for the year 1916-17. Presented to the Legislature, March 20th, 1918. *Printed*.
- No. 80 Budget Speech of the Provincial Treasurer, delivered in the House on the 12th February, 1918. *Not presented. Printed*.
- No. 81 Telephone Systems—Statistical information and Acts relating to. *Not presented. Printed*.
- No. 82 Report of Bureau of Municipal Affairs for the year 1917. Presented to the Legislature, March 21st, 1918. *Not printed*.
- No. 83 Order-in-Council of 21st March, 1918, designating the Hospitals, Refuges, Orphanages and Infants' Homes, to which aid may be granted under the Hospitals and Charitable Institutions Act. Presented to the Legislature, March 21st, 1918. *Not printed*.
- No. 84 Return to an Order of the House of the 7th March, 1917, for a Return shewing—1. What was the number and kind of pelts or skins of fur-bearing animals coming into the possession of the Government of the Province of Ontario during the years 1910, 1911, 1912, 1913, 1914, 1915, and 1916, respectively, because of violation of any law or laws relating to fur-bearing animals. 2. What disposition of such pelts or skins has been made by the Government. 3. And what price or prices for

- each kind of fur, and to whom have the aforesaid pelts or skins been disposed of by the Government. Mr. *Ferguson* (Kent). Presented to the Legislature, March 21st, 1918. *Not printed.*
- No. 85 Report of the Soldiers' Aid Commission of Ontario for the year 1917. Presented to the Legislature, March 21st, 1918. *Not printed.*
- No. 86 Return to an Order of the House of the 6th March, 1918, for a Return shewing—1. How many civil servants were released during the past year for work on Ontario farms. 2. What are the names of such employees. 3. How long were they so employed. 4. What are the names of the parties by whom they were employed. Mr. *Ham*. Presented to the Legislature, March 21st, 1918. *Not printed.*
- No. 87 Return to an Order of the House of the 20th March, 1918, for a Return shewing—1 (a) How many copies of the Report relating to the registration of births, marriages and deaths in the province for the year 1916, were published. (b) How many were distributed. 2. What was the cost of printing and publication. 3 (a) How much would the cost have been reduced if the Report had been confined to the first 57 pages. (b) How much, if confined to the first 154 pages. 4. How many officials and clerks were employed in the preparation of the copy of the said Report for the printer, and for what approximate time and at what estimated cost. Mr. *Dewart*. Presented to the Legislature, March 21st, 1918. *Not printed.*

Forty-Eighth Annual Report

OF THE

Entomological Society

OF ONTARIO

1917

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO :

Printed by A. T. WILGRESS, Printer to the King's Most Excellent Majesty

1918

Printed by
WILLIAM BRIGGS,
Corner Queen & John Sts.,
Toronto.

*To His Honour, SIR JOHN STRATHEARN HENDRIE, a Lieutenant-Colonel in the
Militia of Canada, etc., etc., etc.,*

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned begs to present for the consideration of your Honour, the
Report of the Entomological Society for 1917.

Respectfully submitted,

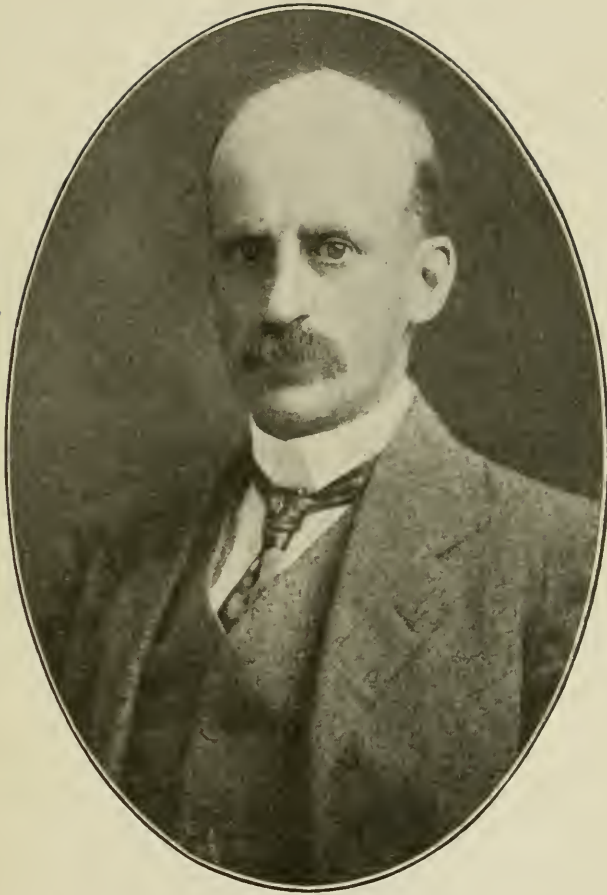
WILLIAM H. HEARST,

Minister of Agriculture.

Toronto, 1918.

CONTENTS.

	PAGE
OFFICERS FOR 1917-1918	6
FINANCIAL STATEMENT	6
LIST OF MEMBERS	7
LIST OF MEMBERS ON ACTIVE SERVICE	8
ANNUAL MEETING	9
Report of the Council	9
" Librarian	11
" Curator	11
" Montreal Branch	12
" Toronto Branch	13
" British Columbia Branch	13
" Nova Scotia Branch	14
" Delegate to the Royal Society of Canada	15
Address J. C. CHAPAIS, Delegate of Quebec Society for the Protection of Plants	17
Reports on Insects for the Year: Division No. 1, A. GIBSON	18
" " 3, A. COSENS	20
" " 5, F. J. A. MORRIS	22
" " 6, J. W. NOBLE	28
" " 7, W. A. ROSS	29
Further Notes on the Imported Onion Maggot and its Control: A. GIBSON	30
The Entomological Service of Quebec: GEORGES MAHEUX	33
Some Important Insects of the Season: L. CAESAR	36
The Apple and Thorn Skeletonizer: E. P. FELT	44
Some Notodontian Larvæ: J. A. CORCORAN	47
The Problem of Mosquito Control: T. J. HEADLEE	49
The Black Cherry Aphis: W. A. ROSS	59
A Comedy of Errors: F. J. A. MORRIS	69
Transcanadian Spiders: J. H. EMERTON	76
A Further Report on the Value of Dusting vs. Spraying: L. CAESAR	79
Notes on the Ecology of Insects: W. LOCHHEAD	86
Effect of Stable and Horn Fly Attacks on Milk Production: A. W. BAKER	92
Two Unusual Garden Pests in Nova Scotia: W. H. BRITAIN	95
The Entomological Record: A. GIBSON	100



MR. ALBERT F. WINN,
President of the Entomological Society of Ontario, 1915-1917.

Entomological Society of Ontario

OFFICERS FOR 1917-1918

President—PROF. LAWSON CAESAR, Dept. of Entomology, Ontario Agricultural College, Guelph.

Vice-President—MR. ARTHUR GIBSON, Division of Entomology, Ottawa.

Secretary-Treasurer—MR. A. W. BAKER, B.S.A., Lecturer in Entomology, O. A. College, Guelph.

Curator—MR. ERIC HEARLE, O. A. College, Guelph.

Librarian—REV. PROF. C. J. S. BETHUNE, M.A., D.C.L., F.R.S.C., Professor of Entomology and Zoology, O. A. College, Guelph.

Directors—Division No. 1, MR. J. M. SWAINE, Entomological Branch, Dept. of Agriculture, Ottawa; Division No. 2, MR. C. E. GRANT, Orillia; Division No. 3, DR. A. COSENS, Parkdale Collegiate Institute, Toronto; Division No. 4, MR. F. J. A. MORRIS, Peterborough; Division No. 5, MR. J. W. NOBLE, Essex, Ont.; Division No. 6, MR. W. A. ROSS, Vineland Station, Ont.

Directors (ex-Presidents of the Society)—REV. PROF. C. J. S. BETHUNE, M.A., D.C.L., F.R.S.C., Guelph; W. HAGUE HARRINGTON, F.R.S.C., Ottawa; PROF. JOHN DEARNESS, Vice-Principal, Normal School, London; REV. THOS. W. FYLES, D.C.L., F.L.S., Ottawa; PROF. WM. LOCHHEAD, B.A., M.S., Macdonald College, Que.; JOHN D. EVANS, C.E., Chief Engineer, Central Ontario Railway, Trenton; PROF. E. M. WALKER, B.A., M.B., F.R.S.C., University of Toronto; C. GORDON HEWITT, D.Sc., F.R.S.C., Dominion Entomologist, Ottawa; MR. ALBERT F. WINN, Westmount, Que.

Editor of "The Canadian Entomologist"—PROF. E. M. WALKER, Toronto.

Delegate to the Royal Society of Canada—THE PRESIDENT.

FINANCIAL STATEMENT

For year ending October 31st, 1917.

Receipts.

Cash on hand, 1915-16	\$27 58
Advertisements	53 80
Back numbers	231 88
Cork and pins	100 43
Dues	80 65
Subscriptions	471 73
Government grant	1,000 00
Bank interest	14 81

\$1,980 88

Expenditures.

Printing due on 1915-16	\$66 96
Annual meeting	124 35
Printing	1,221 90
Salaries	225 00
Library	24 00
Expense	41 27
Bank exchange	10 21
Cork and pins	103 59
Annual report	121 50
Cash on hand	42 10

\$1,980 88

To balance due on printing	\$104 14
By cash on hand	42 10

Net deficit \$62 04

Auditors: L. Caesar.

J. E. Howitt.

Respectfully submitted,

A. W. BAKER,

Secretary-Treasurer.

LIST OF MEMBERS

ONTARIO.

Andrews, H. D. Toronto.
 Astwood, J. C. Port Arthur.
 Baker, A. W. Guelph.
 Beaulne, J. I. Ottawa.
 Biggar, W. E. Hamilton.
 Brimley, J. F. Bloomfield.
 Brobst, C. K. Toronto.
 Burrows, A. R. Guelph.
 Caesar, Prof. L. "
 Calvert, J. F. London.
 Chrystal, R. Neil Ottawa.
 Cleeves, A. C. Guelph.
 Clemens, W. A. Toronto.
 Cosens, Dr. A. "
 Craigie, E. H. "
 Crawford, H. G. Wilton Grove.
 Curran, H. Guelph.
 Dearness, Prof. J. London.
 Doherty, T. K. Ottawa.
 Duff, G. H. Hamilton.
 Dunlop, James Woodstock.
 Fouse, C. M. Toronto.
 Gibson, Arthur Ottawa.
 Gooderham, C. B. "
 Grant, C. E. Orillia.
 Grant, L. J. M. "
 Hahn, Paul Toronto.
 Haight, D. H. Sudbury.
 Hannibal, J. Toronto.
 Hearle, E. Guelph.
 Hewitt, Dr. C. Gordon ... Ottawa.
 Huntsman, Dr. A. G. Toronto.
 James, L. E. St. Thomas.
 Jolly, Miss Toronto.
 King, Lieut. Vernon Guelph.
 Kirkwood, K. Toronto.
 Kitto, V. Ottawa.
 Kurata, T. B. Toronto.
 Logier, S. "
 Macnamara, C. Arnprior.
 Morris, F. J. A. Peterborough.
 Mossop, Miss B. K. E. Toronto.
 Nash, C. W. "
 Noble, J. W. Essex.
 Petch, C. E. Ottawa.
 Ross, W. A. Vineland.
 Rowland, H. F. Guelph.
 Saxby, J. W. Toronto.
 Shorey, W. P. Vineland Sta.
 Sladen, F. W. L. Ottawa.
 Smith, Arthur Toronto.
 Snazelle, C. "
 Spencer, Capt. G. J. Guelph.
 Swaine, J. M. Ottawa.
 Strickland, E. H. "
 Thompson, J. W. Toronto.
 Tomlinson, A. H. Guelph.
 Walker, Prof. E. M. Toronto.
 Watson, Dr. A. H. R. Port Hope.
 White, James Snelgrove.
 Williams, G. A. Port Hope.
 Wright, Capt. W. H. Guelph.
 Zavitz, E. J. Toronto.

QUEBEC.

Barwick, E. C. Montreal.
 Burgess, Dr. T. J. W. Verdun.
 Chambers, C. Montreal.
 Chapais, J. C. St. Denis.
 Chagnon, G. Montreal.
 Clayson, G. H. "
 Corcoran, J. A. "
 Cummings, R. F. "
 Davis, M. W. Westmount.
 Dunlop, G. C. Montreal.
 Du Porte, E. M. Macdonald
 College.
 Garland, C. Montreal.
 Germain, Bro. Three Rivers.
 Gibb, L. Montreal.
 Hall, G. H. "
 Holmes, J. G. Westmount.
 Huard, Rev. V. A. Quebec.
 Jackson, Dr. F. S. Montreal.
 Leopold, Rev. Father. La Trappe.
 Letourneau, F. Oka.
 Lochhead, Prof. W. Macdonald
 College.
 Moore, G. A. Montreal.
 Southee, G. A. "
 Winn, A. F. Westmount.

NEW BRUNSWICK.

Tothill, J. D. Fredericton.
 Baird, A. B. "

NOVA SCOTIA.

Allen, E. Chesley Yarmouth.
 Baird, W. W. Nappan.
 Blair, W. S. Kentville.
 Brittain, Prof. W. H. Truro.
 De Wolfe, L. A. "
 Dustan, A. G. Bridgetown.
 Good, C. A. Truro.
 Harlow, L. C. "
 Lindsay, Harriet E. "
 Longley, Miss M. Paradise.
 McKay, Dr. A. H. Halifax.
 Payne, H. G. Granville
 Ferry.
 Payne, S. H. "
 Perrin, Joseph Halifax.
 Sanders, G. E. Bridgetown.
 Scott, Prof. J. M. Truro.
 Wetmore, Ralph Yarmouth.
 Whitman, C. F. U. Lawrencetown.
 Young, Ermina Brighton.

MANITOBA.

Brooker, S. H. Winnipeg.
 Criddle, Norman Treestbank.
 Hippenley, Mrs. W. W. Dauphin.
 Hunter, Dr. A. J. Teulon.
 Wallis, J. B. Winnipeg.

SASKATCHEWAN.

Androchowicz, E. Humboldt.
 Bentley, Miss L. Mellville.
 Hutchinson, H. Starblanket.
 Neville, S. J. Cottonwood.
 Willing, Prof. T. N. Saskatoon.

ALBERTA.

Antijutti, Miss E. Barons.
 Baird, Thomas High River.
 Bentley, Lettice Lethbridge.
 Bowman, K. Edmonton.
 Carr, F. S. "
 Dod, F. H. Wolley Midnapore.
 Henderson, Mrs. L. A. Barons.
 Imeson, Miss V. "
 Mackie, Donald Edmonton.
 Phillips, E. Lacombe.
 Whitehouse, F. C. Red Deer.

BRITISH COLUMBIA.

Blackmore, E. H. Victoria.
 Brawn, W. A. "
 Brinkman, M. "
 Buckell, W. N. Salmon Arm.
 Cameron, Dr. A. E. Agassiz.
 Carter, W. R. Victoria.

Cockle, J. W. Kaslo.
 Cunningham, C. Victoria.
 Day, G. O. Duncan's, V.I.
 Downes, N. Victoria.
 Evans, H. H. Vernon.
 French, P. E. Salmon Arm.
 Garrett, C. B. D. Cranbrook.
 Hadwen, Dr. S. Agassiz.
 Hanham, A. W. Duncan's
 Station.
 Harris, Miss M. Deroche.
 Hook, G. Cobble Hill.
 Hugh, G. W. Victoria.
 Johnstone, W. B. Edgewood,
 Arrow Lake.
 Kermode, F. Victoria.
 Leach, D. H. Salmon Arm.
 Mathers, G. W. Vancouver.
 McKeever, F. W. Penticton.
 Phair, A. W. A. Lillooet.
 Robson, A. C. U. Victoria.
 Ruhman, M. Vernon.
 Stevens, M. G. Vancouver.
 Taylor, L. E. Kelowna.
 Treherne, R. C. Agassiz.
 Venables, E. P. Vernon.
 Warren, Miss E. Barnston
 Island.
 White, E. W. Victoria.

HONORARY MEMBERS

Cockerell, Prof. T. D. A. Boulder, Col.
 Comstock, Prof. J. H. Ithaca, N.Y.
 Cresson, Ezra T. Philadelphia,
 Pa.

Felt, Dr. E. P. Albany, N.Y.
 Howard, Dr. L. O. Washington,
 D.C.
 Wickham, Prof. H. F. Iowa City, Ia.

LIFE MEMBERS

Bethune, Rev. C. J. S.
 Professor of Entomology.
 Ontario Agricultural
 College, ... Guelph.

Evans, John D., C.E. Trenton.
 Fyles, Rev. Dr. T. W. Ottawa.

MEMBERS OF THE ENTOMOLOGICAL SOCIETY OF ONTARIO
ON ACTIVE SERVICE

Bird, M. L. Prince Rupert,
 B.C.
 Brawn, L. A. Victoria, B.C.
 Brodie, H. S. { Dom. Ent. Lab.,
 Agassiz, B.C.
 Burrows, A. R. O.A.C., Guelph.
 *Bush, A. H. Vancouver, B.C.
 Cleaves, A. C. O.A.C., Guelph.
 Creese, H. H. Kelowna, B.C.
 Curran, H. Dom. Ent. Lab.,
 Vineland, Ont.
 Dickie, C. M. Kentville, N.S.
 Dod, F. H. Wolley Midnapore, Alta.
 Good, Lieut. C. A. Truro, N.S.
 *Harvey, R. V. Victoria, B.C.
 Hudson, H. F. Entomological
 Br., Ottawa.
 King, V. Bureau of Ento-
 mology, Wash-
 ington, D.C.

Martin, A. South Vancouver,
 B.C.
 Matheson, J. B. Kelowna, B.C.
 McCubbing, C. Salmon Arm, B.C.
 Neville, S. J. Cottonwood, Sask.
 Prewett, F. J. Toronto, Ont.
 Rive, Henry Victoria, B.C.
 Robertson, W. H. "
 Robson, A. B. V. "
 Rowland, H. F. O.A.C., Guelph.
 Simms, H. M. Montreal, P.Q.
 Snazelle, Chas. Thornloe, New
 Ontario.
 Spencer, Capt. G. J. O.A.C., Guelph.
 Strickland, E. H. Entomological
 Br., Ottawa.
 Venables, E. P. Vernon, B.C.
 *Walsh, Lieut. F. W. O.A.C., Guelph.
 Williams, C. M. Nappan, N.S.
 Wilson, Ed. Vancouver, B.C.
 Wright, Lieut. W. H. O.A.C., Guelph.

*Killed in action.

Entomological Society of Ontario

ANNUAL MEETING

The Fifty-fourth Annual Meeting of the Society was held at Macdonald College, Ste. Anne de Bellevue, Que., on Thursday and Friday, Nov. 8th and 9th. The chair was occupied by the President, Mr. A. F. Winn.

The following members were present: Dr. C. Gordon Hewitt and Messrs. Arthur Gibson, J. M. Swaine and J. I. Beaulne, Ottawa; Messrs. A. F. Winn and G. A. Moore and Dr. J. A. Corcoran, Montreal; Prof. Wm. Lochhead and Mr. E. M. du Porte, Macdonald College; Mr. Geo. Maheux, Quebec; Mr. J. C. Chapais, St. Denis-en-bas, Que.; Father Leopold and Mr. F. Letourneau, La Trappe, Que.; Mr. R. F. Cummings, Maissonneuve, Que.; Mr. J. D. Evans, Trenton, Ont.; Prof. L. Caesar and Mr. A. W. Baker, O. A. College, Guelph; Mr. F. J. A. Morris, Peterborough; Mr. W. A. Ross, Vineland Station, Ont.; Mr. H. F. Hudson, Strathroy, Ont.; Prof. W. H. Brittain, Truro, N.S.; and Messrs. A. L. McLaine and C. E. Petch, Fredericton, N.B.

Others present were Prof. Arthur Willey, Montreal; Dr. F. C. Harrison. Professors T. G. Bunting and Jas. Murray, and Mr. W. P. Fraser, Macdonald College; Mr. J. H. Emerton, Boston, Mass.; Dr. T. J. Headlee, New Brunswick, N.J.; Mr. A. F. Burgess, Melrose Highlands, Mass.; and Prof. W. C. O'Kane, Durham, N.H.

On Thursday morning a meeting of the Council was held in the office of Prof. Lochhead, at which the report of the proceedings during the past year and the financial statement were received and adopted. It was decided that all payments for articles contributed to the Annual Report be discontinued. The Council also decided that the next Annual Meeting be held at the Ontario Agricultural College, Guelph.

In the afternoon the Society met in the Biology Building, and the meeting was called to order by the President. After the reading of the reports of the Council, Treasurer, Librarian and Curator and of the various branches of the Society, the local Secretary, Prof. Lochhead, read a letter from Dr. Hewitt expressing regret at his inability to attend all the meetings. Letters of regret were also read from a number of entomologists from the United States.

At the close of the afternoon session telegrams were sent to Dr. Bethune and Dr. Fyles, conveying to them the Society's greetings and good wishes and expressing regret at their absence from the meeting.

REPORT OF THE COUNCIL.

The Council of the Entomological Society of Ontario begs to present its report for the year 1916-1917.

The Fifty-third Annual Meeting of the Society was held at the Ontario Agricultural College, Guelph, on Thursday and Friday, November 2nd and 3rd, 1916. The President of the Society, Mr. A. F. Winn, Westmount, P.Q., occupied the chair. There was a very satisfactory attendance of members and students; among the visitors from a distance may be mentioned Dr. L. O. Howard, Chief

of the Bureau of Entomology, Washington, D.C., and Professor Parrott, Geneva, N.Y. A large number of papers of interest and importance were read and discussed, of which the following is a list: "The Naturalist in the City," by the Rev. Dr. T. W. Fyles; "Dusting Fruit-trees and Grapes for the Control of Biting Insects and Diseases," by Prof. L. Caesar; "General Notes on Aphids which Occur on Apple-trees," by Mr. W. A. Ross; "Further Experiments with the Green Apple Bug," by Prof. W. H. Brittain; "Notes on *Physonota unipuncta*, the Sun-flower Tortoise-beetle," by Mr. A. F. Winn; "Preliminary Notes on the use of Repellents for Horn-flies and Stable-flies on Cattle," by Mr. A. W. Baker; "The Wood of Desire," by Mr. F. J. A. Morris; "Insects as Material for Studies in Heredity," by Prof. W. Lochhead; "The Migratory Tendency in Dragonflies," by Prof. E. M. Walker; "The History of the Forest Tent-Caterpillar and Fall Web-worm in North America," by Mr. A. B. Baird; "Three Important Greenhouse Pests recently introduced into Canada," by Mr. A. Gibson; "Camp Hygiene," by Capt. G. J. Spencer; "Experiments in the Control of the Apple Maggot," by Prof. W. H. Brittain; "Summary of Experiments on the Control of Locusts by *Coccobacillus acridiorum* d'Herelle," by Messrs. E. M. du Porte and J. Vanderleck; "Three Shade-tree Insects," by Mr. J. M. Swaine; "Notes on Some Insects of the Season," by Prof. L. Caesar; and "Parasites of the Larch Saw-fly," by Dr. C. Gordon Hewitt.

The Canadian Entomologist, the official organ of the Society, has been regularly issued each month; the 48th volume was completed in December, 1916. It contained 437 pages and was illustrated with 13 full-page plates and 21 original figures in the text. The contributors of papers numbered 55 and included writers in Ontario, Quebec, Nova Scotia, Manitoba, Alberta, fourteen of the United States, and London, England. The series of interesting and instructive papers on "Popular and Practical Entomology" was continued each month. During the year, 155 new species, subspecies and varieties, and 42 new genera were described, a much larger number than usual. These systematic and descriptive papers render the magazine indispensable to workers in various fields of scientific entomology and cause a constant application for back numbers and volumes.

The attendance of students at military drill during the afternoons when the daily lectures were over prevented most of the members of the society in Guelph from coming to meetings; few, therefore, were held during 1916-17, and those were mostly of a business character, at which thirty new members were elected. The following papers, however were read during the year:

"Some Ontario Mosquitoes," by Eric Hearle.

"The Colorado Potato Beetle," by A. W. Guild.

"Lady-bird beetles," by R. M. Aiton.

Year by year it becomes our sad duty to record the loss and pay tribute to the memory of departed members of our Society. On the 18th of November, 1916, Mr. Edmund Baynes Reed died at Victoria, B.C., after a long illness. He was one of the original members of the Society when it was formed in 1863, and for twenty-five years filled various offices with great industry and enthusiasm. He was largely instrumental in establishing our library and assisted greatly in building up the Society's collections of Canadian insects. His removal to British Columbia in 1890 was a distinct loss to the Society, though he continued to take great interest in its welfare. An appreciative obituary notice by his lifelong friend, Dr. Bethune, was published in the February, 1917, number of the *Canadian Entomologist*. Another of our British Columbian members has been removed

from us owing to the tragic death of Mr. Tom Wilson, who lost his life on March 6th in a fire that destroyed the Quaballa Hotel at Hope, B.C. He was engaged at the time in his work of inspecting and improving the orchards on the Indian reserves. He was President of the British Columbia Branch of our Society in 1912 and always took a very active interest in its proceedings. He possessed a remarkable knowledge of the trees, plants and insects of the Province, and had made a large collection of the latter, which he presented to the Canadian national cabinets in charge of the Entomological Division at Ottawa. An interesting sketch of his life by Dr. C. Gordon Hewitt, was published in the *Canadian Entomologist* for August. We have also to record with much regret the sudden death of Mr. A. H. Kilman, of Ridgeway, Ont., who had been a member of the Society for a great many years. He formed a large and valuable collection of Coleoptera which is now in the possession of the Ontario Agricultural College at Guelph.

On Tuesday of this week another of our members has been removed from us in the person of Mr. S. T. Wood, who died in Toronto after a few weeks' illness, in the 57th year of his age. He was for many years on the editorial staff of *The Globe* newspaper, and was widely known as the writer of numerous sketches of the various aspects of nature at all seasons of the year. Many of these were collected together and recently published in a beautifully illustrated volume "The Rambles of a Canadian Naturalist." They form a series of charming papers on wild animal life, birds and insects, flowers, trees and shrubs, observed in the neighborhood of Toronto in groves and ravines which the hand of man has not yet disturbed.

REPORT OF THE LIBRARIAN.

As there were no funds available for the purpose, no books were purchased nor was any binding done during the year ending on October 31st, 1917; there is very little, therefore, to report. Only nine bound volumes were placed upon the shelves, making the total number on the register 2,271; the unbound material, consisting of bulletins, reports, periodicals and pamphlets, continues to increase and, it is hoped, may some day be put in proper shape and made available for convenient reference.

CHARLES J. S. BETHUNE, *Librarian*.

REPORT OF THE CURATOR.

The collections of the Society during the past year have been carefully and regularly examined, and precautions have been taken to prevent injury by museum pests.

Professor T. D. A. Cockerell, of the University of Colorado, Boulder, Col., very kindly sent a number of specimens of bees, and wrote that he had read with great interest Dr. Bethune's account of the collections of our Society. He also said that when the collection was exhibited in London at the Fisheries Exhibition in 1882, he examined it very carefully and made many notes; it was the first

collection of North American insects that he had ever seen, and it interested him very much in comparison with the British fauna.

Few other additions have been made to the collections this year, and any presentations, especially of Diptera and Hemiptera would be gratefully received.

Respectfully submitted,

W. G. EVANS, *Curator.*

REPORT OF THE MONTREAL BRANCH.

The 369th regular and 44th Annual Meeting of the Montreal Branch of the Entomological Society of Ontario was held at the residence of Geo. A. Moore, 359 Quebec St., Outremont, on Saturday evening, May 12th, 1917, at 8.15 p.m.

The report of the Council showed that during the season 1916-1917, eight meetings were held with a total attendance of 98 or an average of over 12 per meeting. This is the largest attendance on record since 1874-5 when it totalled 100; that year the average attendance was only 7. The largest average attendance on record formerly was for the season 1898-9 when it was slightly over 10 per meeting. The large attendance this year was due to two special meetings held: one in the Redpath Museum when Dr. Jackson gave a lantern lecture and the other at the Loyola College when a number of the pupils were present.

We report the death of one of our oldest members, the late Albert Griffin.

During the season the following papers and talks were given before our Society:—

1. President's Annual Address A. F. WINN.
2. Notes on *Physonota unipuncta* (Col.) A. F. WINN.
3. Habits and life history of *Nymphula maculalis* Chem. DR. F. S. JACKSON.
4. Collecting Wasps and Bees F. W. L. SLADEN.
5. Hemiptera taken at St. Hilaire, Que., on May 24th, 1916. GEO. A. MOORE.
6. Diurnal Moths taken at Vaudreuil, Que. DR. J. A. CORCORAN.
7. The Season, 1916 L. GIBB.
8. Belostomatidæ GEO. A. MOORE.
9. Description of Annual Meetings of the American Entomological and Washington Societies DR. CORCORAN.
10. Insects Attacking Apple Orchards at Covey Hill and Hemmingford in 1916 J. I. BEAULNE.
11. Leaf-cutting Ants DR. F. S. JACKSON.
12. Chinch Bugs GEO. A. MOORE.
13. The Study of Insects. Some Practical and Theoretical Aspects of Entomology DR. F. S. JACKSON.
14. Sex Characteristics of the Nymphalidæ G. CHAGNON.
15. The Making of Lantern Slides DR. CORCORAN.
16. Insects in Shore Drift (Hemiptera) GEO. A. MOORE.
17. Dimorphism in the Genus *Grapta* A. F. WINN.

The Treasurer's report showed a balance on hand of \$90.80.

The following officers were elected for the coming year:—

- President* A. F. WINN.
Vice-President G. CHAGNON.
Secretary-Treasurer GEO. A. MOORE.
Librarian G. CHAGNON.
Council G. A. SOUTHEE, DR. CORCORAN, J. G. HOLMES, G. H. HALL.

Respectfully submitted,

GEO. A. MOORE, *Secretary.*

REPORT OF THE TORONTO BRANCH.

The 210th meeting and 21st annual meeting of the Toronto Branch was held in the Biological Building of the University on Thursday, Oct. 18th, 1917, the President, Dr. Walker, in the chair. Those present were Dr. Walker, Dr. Cosens, Dr. Clemens, Miss Mossop, Miss Margery Ford, Miss Norma Ford, Messrs. Andrews, Logier, Hannibal, Brobst, Wright and Reid, and three visitors. After the reading of the minutes the report of the Council and the financial statement were presented by the Secretary-treasurer. Only seven meetings, including the annual meeting, were held during the year, with an average attendance of ten. This small number of meetings was due to the necessity of closing the season with the meeting of April 19th, owing to the fact that a number of the members were absent from the city early in the year. Four new members were elected during the year. The financial statement showed a balance on hand of \$7.09.

The papers read during the season were as follows:—

Oct. 26.	Migratory Tendencies of Dragon-flies	E. M. WALKER.
Nov. 23.	Life History of <i>Ips pini</i>	W. A. CLEMENS.
Jan. 18.	Pond Life	C. W. NASH.
Feb. 15.	City and Field Collecting	H. V. ANDREWS.
Mar. 15.	Ants and Aphids	S. LOGIER.
Apr. 19.	Mites and Ticks, and their Relation to Disease	E. M. WALKER.

The election of officers for the ensuing year resulted as follows:—

<i>President</i>	DR. W. A. CLEMENS.
<i>Vice-President</i>	MR. H. V. ANDREWS.
<i>Secretary-Treasurer</i>	MR. S. LOGIER.
<i>Librarian</i>	MISS B. K. E. MOSSOP.
<i>Council</i>	DR. A. COSENS, DR. E. M. WALKER, MESSRS. C. W. NASH, J. HANNIBAL and T. B. KURATA.

Two new members were also elected at this meeting.

The remainder of the evening was devoted to an informal discussion of various entomological subjects, in which most of those present took part.

Interesting observations were made by several members on the migrations of the Monarch butterfly (*Anosia plexippus*) and the Cabbage butterfly (*Pieris rapæ*) during the season of 1917 and many specimens of interest were exhibited and discussed.

Respectfully submitted,

SHELLEY LOGIER, *Sec.-Treas.*

REPORT OF THE BRITISH COLUMBIA BRANCH.

The Sixteenth Annual Meeting of the British Columbia Branch was held in the Provincial Museum, Parliament Buildings, Victoria, B.C., on Saturday, March 17th, 1917. The President, Mr. E. H. Blackmore, occupied the chair. There was a good attendance of members from various parts of the Province and much interest was taken in the papers presented.

The reports of the Secretary, Mr. R. C. Treherne and of the Treasurer, Mr. Williams Hugh, showed the Society to be in a very healthy condition and

were unanimously adopted. The meeting was divided into two sessions. During the morning session, Mr. E. H. Blackmore delivered his presidential address and the following papers were read:—

A Few Notes from Vernon	M. H. RUHMAN.
(a) Hibernation of Larvæ; (b) The Movement of Boreus in the Snow	J. W. COCKLE.
Collecting in the Okanagan District	W. DOWNES.
On the Hibernation of Lady-bird Beetles (Coccinellidæ)	T. WILSON.
Insect Notes of the Year	R. C. TREHERNE.

Afternoon Session.

Notes on Geometridæ new to British Columbia	E. H. BLACKMORE.
Pronunciation of the Scientific Names of Insects	G. O. DAY, F.E.S.
Fossil Insects	DR. S. HADWEN; DR. A. E. CAMERON.
Notes on B.C. Diptera	R. S. SHERMAN.
Factors in Mosquito Control	DR. A. E. CAMERON; DR. S. HADWEN.

The Victoria sub-branch held meetings in the rooms of the Victoria Natural History Society in January, February, March and April, with an average attendance of nine members. The following papers were presented, illustrated with specimens of the subjects taken up:—

The <i>Parnassidæ</i> and <i>Papilionidæ</i> of British Columbia	E. H. BLACKMORE.
<i>Leptarcia californiæ</i> and Its Varieties	E. H. BLACKMORE.
The Lepidoptera of the Northern Okanagan	W. DOWNES.
The Species of the Genus <i>Xylomyges</i> Occurring in B.C.	E. H. BLACKMORE.

The past year has drawn heavily on our list of members; many of them answered the call to arms in the service of the Empire. We regret to record the deaths of two of our oldest and most valued members, Mr. A. H. Bush, of Vancouver, who was killed in action in France during August, 1916, and Mr. Tom Wilson, of Vancouver, who perished in a hotel fire at Hope, B.C., on March 6th, 1917.

The following officers were elected for the year 1917:—

<i>President</i>	E. H. BLACKMORE, P.O. Box 221, Victoria, B.C.
<i>Vice-President</i>	R. S. SHERMAN, Vancouver, B.C. (Coast).
<i>Vice-President</i>	L. E. TAYLOR, Okanagan, B.C. (Interior).
<i>Secretary-Treasurer</i>	WILLIAMS HUGH, P.O. Box 20, Cloverdale, B.C.
<i>Advisory Board</i>	DR. A. E. CAMERON, M.A.; G. O. DAY, F.E.S.; DR. S. HADWEN, and R. C. TREHERNE, B.S.A.

Respectfully submitted,

WILLIAMS HUGH, *Sec.-Treas.*

REPORT OF THE NOVA SCOTIA BRANCH.

The Third Annual meeting of the Entomological Society of Nova Scotia was held at Truro, Aug. 2nd, 1917. A short business meeting was held in the morning, this being followed by the reading of papers at the afternoon and evening sessions. There was an average attendance of about seventy-five at the meetings and the papers were listened to with interest.

The following officers were elected for the year 1917-1918:—

Honorary President DR. A. H. MCKAY, Halifax.
President L. A. DEWOLFE, Truro.
Vice-President G. E. SANDERS, Annapolis.
Secretary-Treasurer W. H. BRITTAIN, Truro.
Assistant Secretary-Treasurer... E. C. ALLEN, Truro.

W. H. BRITTAIN, *Sec.-Treas.*

REPORT OF THE ENTOMOLOGICAL SOCIETY OF ONTARIO TO THE ROYAL SOCIETY OF CANADA, 1916-1917.

FRANCIS J. A. MORRIS, PETERBOROUGH.

I have the honour to present a report of the Entomological Society of Ontario for the year 1916-1917.

The monthly issues of the "Canadian Entomologist" maintain the high standard and the wide range of interest that were noted last year. Well-illustrated, descriptive articles of great importance to specialists in various orders of insects have appeared in every number; several most interesting contributions to insect life-histories have also been made, as well as observations on insect distribution; among these we would mention papers by Dr. Walker, the editor, on the Dragon-flies of Ontario, Prince Edward Island, and Newfoundland; an article on "Lake Shore Insect Drift," by James G. Needham, of Cornell, and one on "Beetles of the West Coast of Florida," by W. S. Blatchley, of Indianapolis.

The monthly series of articles on "Popular and Practical Entomology" has proved a great success and several papers of exceptional interest have appeared during the year, notably, "From the Editor's Office Chair," by Prof. R. P. Dow, of the Brooklyn Entomological Society; "Collecting Notes on Beetles in Maine," by C. A. Frost, of Framingham, Mass.; "The Control of Ants," by Arthur Gibson, of Ottawa; "The Plum Curculio," by Lawson Caesar, of Guelph; and, "Notes on the Black Apple Leaf-hopper," by Messrs. Brittain and Saunders, Entomological Division of the Department of Agriculture, Nova Scotia.

We are very glad to be able to call attention, too, to some steps taken in a much needed direction: I mean towards the co-ordination of all entomological interests in the Dominion. For the first recent steps towards this end credit is due, we believe, to our President, Mr. Winn, of Westmount, P.Q. More than a year ago he suggested that members with available duplicates among their specimens should make contributions to the public collections in Montreal and Guelph: this admirable suggestion has now been taken up at headquarters, and we note in the December issue of the magazine a call from Dr. Gordon Hewitt to all members of the Society to join hands in building up the National Collection of Insects at Ottawa. Again, at the last annual meeting, the President suggested that accounts should be published from time to time of all the more important entomological collections in the Dominion, both private and public. In earnest of this, Dr. Bethune, we note with extreme pleasure, has written an article on the Guelph collections, which appeared in the current issue of May, 1917.

Through lack of just such Dominion-wide co-operation, lovers of nature and students of our *flora* and *fauna* have been sadly handicapped in the past. Strangely enough botany is even worse off than entomology in this respect, for not only is the central government of the science defective, but there is neither a Linnaean Society

nor a botanical magazine of more than Provincial or merely local importance in Canada, and the work done by champions like good old John Macoun and the late James Fletcher has not been continued in recent years nor brought up to date for a quarter of a century.

Some exceptionally interesting publications, appearing during the year, have been reviewed in the pages of the magazine: e.g., Vol. IV of the "Biologia Centrali-Americana," by Lord Walsingham, which will be eagerly hailed by micro-lepidopterists all the world over; Blatchley and Leng's work on the "Rhynchophora of N. E. America," a long felt *desideratum* among students of the beetles and a worthy companion to the senior author's "Coleoptera of Indiana"; the "Life of Inland Waters," by Needham and Lloyd, the Cornell Professors; Dr. Van Duzee's "Check-list of the Hemiptera of America, North of Mexico"; J. M. Aldrich's "Sarcophagidae of North America," being the first Memoir of the Thomas Say Foundation of the Entomological Society of America; and some of the articles in a supplement to the 47th annual report of the Department of Marine and Fisheries, Ottawa, 1915, called "Contributions to Canadian Biology," and comprising Dr. Walker's "Odonata of Go-Home Bay," and W. A. Clemens's "Ephemeridae of the Georgian Bay."

Since your meeting of last May we have recorded with deep regret the loss of several old friends as well as of one of the founders of our Society. In June appeared the notice of Theodore Pergande's death, which occurred in March, 1916: first appointed an assistant in Missouri to C. V. Riley, he was afterwards associated for nearly forty years with the Washington Bureau of Entomology, and not infrequently contributed articles to our magazine. In the same issue was noticed the death (also occurring in March) of Geoffrey Meade-Waldo, of the British Museum of Natural History. He represented that Institution at the Society's Jubilee meeting in Guelph, August, 1913, and all who were fortunate enough to make his acquaintance remember the charm of his personality; his death at the early age of thirty-two means a great loss to British Entomology. A few days after the Royal Society's meeting last May occurred the death of John Beckerton Williams, of Toronto, F.Z.S., an old and faithful member of our Association, a true lover of nature and a man of most modest and gentle disposition. Finally, on November the 18th last, at Victoria, B.C., there passed away Edmund Baynes Reed, in the seventy-ninth year of his age. He was one of Ontario's pioneer entomologists, and a member of the original group who founded our Society more than fifty-three years ago. The very feeling tribute to his memory that appeared last February was from the pen of his life-long friend, our revered emeritus editor, Dr. Bethune, who now remains almost sole survivor of that little band of devotees.

The Society's annual activities culminated very fittingly last November in a grand two-day re-union at Guelph. The popular lecture was delivered by Dr. L. O. Howard, Chief of the Bureau of Entomology, Washington, on the subject of "Insects as Disease-carriers." Reports were presented at this meeting from six different districts of Ontario, as well as from the branches in Toronto, Ottawa, Montreal, Quebec, Manitoba, British Columbia and Nova Scotia. Visitors were present from the length and breadth of the Dominion, and also from several of the United States. Nearly a score of papers were read at the meeting, and the comments and discussions evoked by most of these, particularly by those of an economic character, bore eloquent testimony to the interest with which the proceedings were followed throughout. Practically a verbatim account of this meeting, including all the papers read, is now in the press and will shortly appear as the Forty-seventh Annual Report of the Entomological Society of Ontario.

ADDRESS.

J. C. CHAPPAIS, DELEGATE OF THE QUEBEC SOCIETY FOR THE PROTECTION OF PLANTS.

Representing here, as a delegate, the Quebec Society for the Protection of Plants, I have thought it might interest you for a moment to hear about a note I found while perusing, recently, a French work on agriculture called "*Le Livre de la Ferme*," (The Book of the Farm), written by Pierre Joigneaux, an agronomist of France who has edited it at Paris since 1857. This book is considered as one of the classics on agriculture and as an authority in that branch of human knowledge, along with those of De Serres, De Domballes, Gayot, Gasparin, Barral, Isidore Pierre, Heuzé, etc. The note, to which I have just alluded, relates to an essay by a French-Canadian entomologist, Mr. Emilien Dupont who, in 1856, entered it in a competition opened to the entomologists of Canada, as appears from the following quotation:

BUREAU OF AGRICULTURE AND STATISTICS,

Toronto, 15th August, 1856.

On the 15th August, 1856, there issued from this department the following notice:—

Bureau of Agriculture and Statistics,

Toronto, 15th August, 1856

PRIZE ESSAYS—£40, £25, AND £15.

The above premiums will be paid for the three best essays, respectively, on the "Origin, Nature, and Habits—and the history of the progress, from time to time—and the cause of the progress, of the weevil, Hessian fly, midge, and such other insects as have made ravages on the wheat crop in Canada; and on such diseases as the wheat crops have been subjected to, and on the best means of evading or guarding against them."

The Essay to be furnished to the Bureau.....

P. M. VANKOUGHNET,

Minister of Agriculture, etc.

The time named in the notice first issued having been extended to the 15th day of April, twenty-two essays were received up to that time. The Boards of Agriculture for Upper and Lower Canada named Professor Hincks, of University College, Toronto, and Professor Dawson, of McGill College, Montreal, as a Committee, to decide upon the merits of the several essays.

According to the decision of these gentlemen, the *first prize* has been awarded to H. W. Hind, Esq., Professor of Chemistry, at Trinity College, Toronto; the *second prize* to the Rev. George Hill, Rector of Markham; and the *third prize* to Emilien Dupont, Esq., of St. Joachim.

Joigneaux, in his "*Book of the Farm*," fourth edition, edited in 1883, appreciates the prize-awarded essay of Dupont as follows, in chapter LI dealing with "Insects Injurious to Cereals," paragraph *Cecidomyiæ*, page 955, and I have thought that this quotation made by a French agronomist *d'outre mer* of the work of an entomologist of America would prove of some interest to you as it has for me.

Here is the quotation from Mr. Joigneaux:

"Mr. E. Dupont, who has observed keenly the habits of these insects (the *Cecidomyia*), when they were doing a great deal of damage in Canada, in 1834 and during the following years, has made some important observations from which he has drawn valuable indications.

"'*Cecidomyia tritici*,' he says, 'is delicate and can barely do more than move farther than a few acres from its native spot, and, at that, only in calm weather. The fields that

have been sown in wheat and which have been attacked by the *Cecidomyia* the preceding year, are much more infested with it than recently cleared land. Moreover, an observer has noticed prodigious numbers of *Cecidomyia* on potato vines planted in a field which had yielded wheat the preceding summer; these flies were henceforward harmless. Thus the necessity of alternating the crops and keeping wheat as long as possible from the lately infested spots is clearly indicated.

"It has also been demonstrated through observation," says Mr. Dupont, "that by modifying the time of earing of the wheat so as to have it before the 16th of June or after the 20th of July, that is, before or after the time of appearance of the *Cecidomyia*, the damages caused by that insect are avoided."

"Let us then, with Mr. Dupont, say to the farmers: If you dread the wheat fly for next year, do not sow your grain on the same field, nor in its neighbourhood; then, sow, if possible, in April; if this is too early, then wait till the first days of June; lastly, keep your fields clear from weeds which may offer secure shelter for the flies."

That quotation far off echo of what has been done, at a pretty far distant epoch, in Canada, by one of our entomologists, goes to show the spirit of co-operation in the study of the captivating science of entomology which leads the entomologists all over the world, though strangers they may be to one another, to work jointly for the elucidation of the numerous problems offered by that science.*

*The above mentioned essay of Emilien Dupont has been published in French in book form, as a pamphlet of 38 pages, of which the title page reads as follows: Essai sur les insectes et les maladies qui affectent le blé, par Emilien Dupont, Ecr., de St. Joachim, comté de Montmorency. L'auteur a reçu le troisième prix du Bureau d'Agriculture et des Statistiques. Montréal, des presses à vapeur du Canada Directory, rue St-Nicolas, 1857.

The name of Emilien Dupont is a pseudonym. The true name of the author is L'Abbé Léon Provancher, of the Diocese of Quebec, the well-known French-Canadian naturalist, who has written many works on natural history from 1857 to 1891.

REPORT ON INSECTS FOR THE YEAR.

DIVISION No. 1, OTTAWA DISTRICT—ARTHUR GIBSON, ENTOMOLOGICAL
BRANCH, OTTAWA.

ATTACKING FIELD CROPS.

THE STRIPED CUCUMBER BEETLE, *Diabrotica vittata* Fab. In the early part of the summer a good deal of injury was caused by this insect, particularly to cucumbers and Hubbard's squash. Many plants of the latter examined on June 21st were seen to be seriously eaten. Experiments in controlling the beetle by spraying with ordinary poisoned Bordeaux mixture were successful, the plants being thoroughly drenched with the mixture.

THE ASH-GRAY BLISTER BEETLE, *Macrobasis unicolor* Kby., was again complained of in the district as injuring potatoes in the first half of July. On July 7th from one hill 150 beetles were removed.

THE IMPORTED ONION MAGGOT, *Hylemyia antiqua* Mg. In 1917 we continued our experiments with a poisoned bait spray (sodium arsenite), to attract and kill the flies, and as our results were of considerable value a separate statement on this work appears on page 31.

THE CABBAGE ROOT MAGGOT, *Phorbia brassicae* Bouché. While not specially numerous, a good deal of injury was effected by the maggots. Complaints were received chiefly from amateur gardeners who found that their cabbage, cauliflower and turnip plants were being destroyed. One gardener brought to me, on July

9th, samples of young, badly-infested turnips, and stated that a patch about twenty feet square had been ruined.

THE COLORADO POTATO BEETLE, *Leptinotarsa decemlineata* Say, was responsible for enquiries from many city dwellers who were growing potatoes on vacant lots or other areas for the first time. The insect was present in large numbers throughout the district.

THE POTATO APHIS, *Macrosiphum solanifolii* Ashm. was also numerous during 1917, large colonies of the plant lice being present in gardens and fields in Eastern Canada. At Ottawa the insect was controlled satisfactorily by spraying with black leaf 40.

THE POTATO FLEA BEETLE, *Epitrix cucumeris* Harr. Potatoes were freely infested with this insect, its injuries attracting particular attention during early July. Tomatoes and, to a much lesser extent, cucumbers, were also attacked.

THE ZEBRA CATERPILLAR, *Ceramica picta* Harr. In September this caterpillar was present in considerable numbers in various sizes from about one-quarter inch in length to almost full grown individuals. The leaves of turnips and cabbages were freely eaten.

THE WOOLLY-BEAR CATERpillars, namely the YELLOW WOOLLY-BEAR, *Diacrisia virginica* Fab. and the SALT MARSH CATERPILLAR, *Estigmene acraea* Dru. were exceptionally abundant in Eastern Canada in 1917. In the Ottawa district, in August and September, the foliage of low-growing plants of many kinds was much injured. In vegetable gardens cabbages, turnips and other plants were eaten. It is many years since we had such an outbreak of these hairy caterpillars.

WIREWORMS (*Elateridae*) and WHITE GRUBS, (*Lachnosterna* spp.). Some injury was caused by the former, the complaints referring chiefly to damage to the tubers of potatoes. The worms bored into the tubers and rendered them unfit for use. Practically no injury was caused by White Grubs in the district. There were important flights of *Lachnosterna dubia* during the latter half of May and we may expect injury by the second year grubs in 1918.

GRASSHOPPERS. An outbreak of the SLENDER MEADOW GRASSHOPPER, *Conocephalus fasciatus* DeG., caused noticeable injury to field corn near Norway Bay, Que. The insects were present in large numbers and many hills in several rows had been almost completely eaten. The insects were particularly attracted to the male flowers and the nearby tender leaves. The injured rows were largely in a low lying portion of the field.

SLUGS. These creatures were decidedly destructive to many kinds of vegetable crops. The leaves of lettuce, beans, carrots, tomatoes, corn, etc., were freely eaten. In some fields of beans the slugs were present in large numbers and were causing considerable loss. As a remedy we recommended the broadcasting, lightly over the soil before nightfall, of freshly slaked lime. Three applications on consecutive evenings were advised. Reports received afterwards indicated that such control was effective. In gardens the placing of shingles here and there beneath low growing plants is a useful method of trapping slugs. If the shingles are turned over in the morning the slugs there hiding may be easily destroyed by scraping them off and crushing them with the foot.

THE CARROT RUST-FLY, *Psila rosea* Fab. In a few gardens in the Ottawa district the work of this insect was readily apparent. Such infestations as we heard of, when investigated, were found to be too far advanced to make possible any control measures.

THE HORSE RADISH FLEA-BEETLE, *Phyllotreta armoracica*. Although rather outside of the Ottawa district it is of interest to record here the occurrence of this

beetle in considerable numbers at Outremont, Que. One of our correspondents (Rev. Bro. Ouellette), sent to us leaves of horse radish which had been riddled by the beetles. When first discovered no less than 150 specimens were captured by shaking some leaves over a beating net.

ATTACKING FRUIT AND FOREST TREES.

THE RED-HUMPED APPLE-TREE CATERPILLAR, *Schizura concinna* A. & S., was more than usually abundant in some orchards in 1917.

THE CHERRY SLUG, *Eriocampoides limacina* Retz., was also present in noticeable numbers.

THE EYE-SPOTTED BUD-MOTH, *Tmetocera ocellana* Schiff., caused important injury in certain unsprayed orchards.

The Halisidota Tussock Caterpillars, namely, the HICKORY HALISIDOTA, *H. caryæ* Harr., the SPOTTED HALISIDOTA, *H. maculata* Harr., and the CHECKERED HALISIDOTA, *H. tessellaris* A. & S., were remarkably abundant throughout the Ottawa district. The previous outbreak of these caterpillars was in 1907. During the past season they occurred on apple, elm, basswood, maple, birch, and other trees. Conspicuous injury to the foliage of apple by the Hickory Halisidota was observed on August 8th. During the latter half of August and the first half of September the three different Halisidotas were conspicuous almost everywhere in the neighborhood. Around summer cottages they were a decided nuisance from their habit of dropping on people, crawling about verandahs, etc.

GARDEN AND GREENHOUSE INSECTS.

In flower gardens, in addition to cutworms, which were more or less in evidence, the FOUR-LINED LEAF BUG, *Pæcilocapsus lineatus* Fab., rendered unsightly the foliage of asters, dahlias, zinnias, etc. The BURDOCK BORER, *Papaipema cataphracta* Grt., was present in more than usual numbers and destroyed many choice delphinium, dahlia and other plants with succulent stems. The BORDERED SALLOW, *Pyrrhia umbra* Hufn., was again noticed to be destroying the buds of roses at Ottawa. On July 21st young larvæ about one-quarter inch in length were found.

The above species of woolly-bear caterpillars (*Diacrisia virginica* Fab. and *Estigmene acrea* Dru.) were very numerous in flower gardens. Both of these caterpillars are, in general, of similar appearance and habits and feed on a great variety of plants.

There were no special outbreaks of greenhouse insects during the year. Regularly-occurring species such as the various common aphids, scale insects, etc., required constant attention. In the control of soft scales on ferns we have had satisfactory results by spraying rather heavily with three ounces of Sunlight soap to each gallon of water. Several applications, a week apart, were necessary.

DIVISION NO. 3, TORONTO DISTRICT—A. COSENS.

- Although the average temperature in this district, during July and August, was lower than usual, yet the climatic conditions, in some way not easily explained, have proven favorable to the production of certain forms of insect life as several species were exceedingly abundant.

Especially is this true concerning the Lepidoptera; it has certainly been an ideal season for the development of caterpillars.

The White-marked Tussock Moth, *Hemerocampa leucostigma* S. & A., has not been so plentiful for several years; it took complete possession of the city. In some of the down-town districts the shade trees, especially the horse chestnuts, were almost completely defoliated. In certain parts of the suburbs the caterpillars were numerous, where in former seasons only isolated wanderers were to be seen. In Parkdale, practically all the streets were invaded by them and they even found their way into the houses.

“They were the terror of each favorite walk,
The endless theme of all the village talk.”

On the elms of the city the caterpillars of *Acronycta americana* were plentiful enough to do considerable damage. This common species is easily identified by its dense covering of yellow hairs and the long, black pencils of bristles regularly placed on the body.

As a general rule, the “woolly bear” caterpillar, larva of the Tiger Moth, *Diacrisia virginica* Fab., is noticed only in the fall, when it is hurrying about in an eager quest for food before going into winter quarters. This year, however, these reddish-brown larvæ were plentiful in many gardens throughout the entire summer. While they seemed to prefer Virginia creeper they were often seen feeding indiscriminately on grape vines, honeysuckles, lettuce and other plants.

The Isabella Tiger Moth, *Isia isabella* S. & A., the larva of which differs from the preceding in being black at each end, was seen only in normal numbers although it is generally the more abundant species of the two.

The White Cabbage Butterfly, *Pontia rapæ* Linn., has been a much worse pest than usual this summer. Although cabbage patches were plentiful owing to the general cultivation of vacant land, yet every plant observed seemed always to be an object of interest to a swarm of butterflies.

In connection with the surprisingly large number of these butterflies seen in this district during August, the following note, kindly written at my request by Mr. Andrews of the city, is very interesting:

“APPARENT MIGRATION OF *P. RAPÆ* (CABBAGE BUTTERFLY).

“On Sunday morning (about 11.30), Aug. 12th, my attention was attracted by a number of these butterflies coming inland off Lake Ontario.

“Sitting down to watch where they came from, one can imagine my surprise at seeing a huge swarm of these insects flying low over the Lake towards Kew Beach—there were positively thousands of them.

“For three or four days after their arrival they were a perfect pest to people sitting or walking on the beach—they were everywhere and flying with them were the largest number of dragonflies I have ever seen.

“I don’t hesitate to add that this swarm of *P. rapæ* came over the Lake, as everything regarding the weather was in their favour. The wind at the time of their arrival was gentle and blew south-south-west, and they seemed to be flying with it.”

Although the Monarch Butterfly, *Anosia plexippus* Linn., was very numerous last year, it has been even more plentiful this season. During August ample evidence was furnished concerning the congregating habits of these insects. Flocks of them were seen in High Park, Mimico, and other places, even including the

verandahs and shade trees of a street in South Parkdale, where a small swarm collected.

At the same time as the butterflies were gathering together, the Bronzed Grackles were congregating. While among the insects there is of course none of the friendly clamor with which the members of a flock of blackbirds greet each other, yet it would seem that the butterflies are influenced by the same liking for companionship as the birds.

Concerning the starting off of a swarm of butterflies on their long journey to the south, Mr. Andrews, quoted above, has made an important observation. It is only by the collecting of such material that we shall ever be able to unravel the mystery of the migrating tours of this typically American insect the Monarch Butterfly.

"On Sunday afternoon, Sept. 2nd, between 4 and 5 o'clock, I witnessed the departure of a huge swarm of *Anosia plexippus*. The swarm had been congregating for days in Kew Gardens; they flew from the centre of the Gardens towards the Lake and settled on the trees about 100 yards from the Lake. Here they stayed but a few minutes, rising as it were at a given signal they flew off over the Lake in a dense cloud. One thing which I particularly noticed was that their flight was rapid, as if they intended reaching the U.S.A. or wherever they were going in as short a time as possible.

"I forgot to notice the direction of the wind."

A number of Scarlet Oaks, *Quercus coccinea* Muench. in West Toronto, were badly infested with a species of *Bucculatrix*. Several branches from these trees were examined, and it was found that on nearly every leaf there were two or three of the flat, silken webs, under which the larvæ feed after their first moult.

Among other lepidoptera noted as more than usually plentiful, were the House Moth, *Tinea pellionella*, Linn., and two of the large silkworm moths, *Samia cecropia* and *Telea polyphemus*.

DIVISION No. 5, PETERBOROUGH DISTRICT—F. J. A. MORRIS, PETERBOROUGH.

In spite of an extremely backward season and almost uniformly cool summer, the record of captures is one of the best I have ever had. This is true in regard both to single specimens of great rarity and interest, and to long series of insects either new to me or very poorly represented in my collection. By far the most of my observations have been among the Longicorns, and a great many of them have been obtained by following the clues of last season. My report is, therefore, in many respects a sequel to that of last year and is more nearly related to its fore-runner than has usually been the case.

In 1916 I had discovered feeding on choke-cherry foliage a single specimen of a chrysomelid that was new to me. I thought at first it was a species of *Lina* (the change of colour on the thoracic border being mistaken for a thickened margin), but it proved to be *Gonioctena pallida*. The capture had been made about the middle of June. This season I took three specimens in the last week of May, fifteen in the first week of June and a few some days later. They were all found in the same corner of the collecting ground known as "The Wood of Desire"; nearly all on the foliage of choke-cherry, but two on pincherry and one on balm of gilead. Careful search on similar foliage in many other places has so far been without result; I do not know how common or how widely distributed the insect is. In size, shape, and colour it closely resembles *Lina interrupta*; the black

marks on the bright reddish-brown elytra vary considerably in weight and are occasionally almost entirely wanting.

Last year's report mentioned basswood as the probable host of some stray specimens of *Chrysomela* captured by the roadside; these were a robust form of *Chrysomela scalaris*, both larger and more strongly marked than the variety found here on alder; another was captured this season at the same spot—west of Jackson's Park—and careful search along the road margins and fences finally disclosed the breeding ground—two basswoods about 100 yards north of the road; here large numbers of the insect were found and upwards of fifty specimens captured about the middle of June.

The usual insect activity about blossoms in June and July was far below the normal, owing to lack of bright, calm days of summer heat. For instance, before Victoria Day in 1916 numbers of *Pachyta monticola* were captured in white trillium, early elder, and other blossom. This year hardly a longicorn of any kind was to be seen in May, and the trilliums were almost over before we had made a single capture. Much of the blossom itself was nearly ten days late: in 1916 choke-cherry had been almost over between June 4th and June 10th; this year it did not open till the latter date. However, during the short season of its bloom I was most fortunate in getting about three good days' collecting round the "Wood of Desire," and the results were well worth recording.

The puzzling little *Anaglyptus*—*Microclytus* or *Cyrtophorus*—of which we got some fifteen specimens in 1916 and noted two pairs mating, was observed in considerable numbers on June 9th, 11th and 12th, always on choke-cherry; and as late as June 24th four specimens were taken on dogwood blossom (*Cornus alternifolia*) and spiked maple, the choke-cherry being by that date over. A pair was once more seen mating in a flower cluster, and this time was segregated and marked male and female as a verified pair. Altogether over 100 specimens were captured at four different parts of the wood, always just on the edges. On June 12th, a very warm day and bright, over seventy specimens were captured, more than a score being taken from a single tree. Except for its smaller size, the slighter gibbosity of its elytral bases and the less marked compression of its thorax, the beetle can hardly be distinguished in the open from *Cyrtophorus verrucosus*; but it is much more sluggish in habit and crouches or clings in the blossom when approached in a manner quite foreign to *Cyrtophorus*. One of the most interesting points of this year's observations was that about fifty of the insects were brought home alive in small pill boxes, and when released from isolation and put together in a large glass-lidded cardboard box began to mate freely; indeed, within a few minutes I was able to withdraw nearly all the insects in verified pairs. The beetle has several important points of identity with *Cyrtophorus* and at least one essential difference from *Microclytus gazellula*. It can hardly fail to prove extremely close to the European *Anaglyptus mysticus*; it is almost certainly the insect named from Lake Superior by Dr. LeConte as *Microclytus gibbulus*; it is the same as Casey's *Microclytus frosti*, and will be found in many collections, public as well as private, labelled *Microclytus gazellula*.

While ransacking blossom for this little *Anaglyptus*, several longicorns new to me or rare, were taken in June. On the 9th a beetle was distinctly seen to fly from a grove of beechtrees to a cedar near the wood; it proved on capture to be *Anthophilax attenuatus*, an insect entirely new to me. Mr. Harrington has reported it from beech in the Ottawa district. On June 11th, re-ting on the top foliage of a tall choke-cherry, a beautiful specimen of *Anthophilax malachiticus* was taken, the second insect of this species captured by me in over twelve years'

collecting. A curious observation was made on this date, June 11th; it was a dull day and the wind was chilly; I captured only eleven specimens of *M. gibbulus*, and these were all taken alive; but it proved impossible to secure a mating pair; on measuring the antennæ, I found them all short—three-quarters the body length; they were all females, and I infer that in cool weather the males are less active and do not visit their favorite pollen blossoms; both before and after that date, on bright, hot days, the males were almost as plentiful as the females.

Professional duties combined with a wet week end to interrupt field observations between June 12th and 23rd. On the latter date I captured the first of a series of the longicorn *Psenocerus supernotatus*; I had previously captured but one or two isolated specimens at long intervals; this season I captured one on willow, three on sumach, and four or five on newly fallen balm of gilead; these last were all of a very small variety, the others of normal habit. The specimen captured on the 23rd was found resting on a thick limb of willow that was dying from the attacks of *Cryptorhynchus lapathi*. On this date while examining the trunk of a large felled spruce that had been cut into three logs and stripped of its branches I saw what at first I took to be an elater crawling on the bark; its movements and the appearance of its antennæ, however, being suggestive of *Asemum*, it suddenly occurred to me that it was on spruce I had once captured *Tetropium cinnamopterum*. This insect is usually parti-coloured, the head and thorax piceous and the wing-covers light cinnamon brown, whereas the creature before me was all piceous, and both smaller and narrower than any of *Tetropium cinnamopterum* I had ever seen. It proved, however, to be that species. For some time I could see only this one specimen, but just as I was going away I caught sight of a second, small and unicolorous like the first, just disappearing over the far side of the log. I raced round the log to intercept it, but when I got there to my amazement there was no insect, either on the log or on the ground. Now the bark of a spruce is rough and flaky; more or less idly I began lifting the flakes with a jack-knife, when suddenly from under one of them raced into view one of the parti-coloured forms of *T. cinnamopterum*, followed by its mate, the small piceous insect I had been looking for. Acting on this hint I continued to prise up the flakes of bark and succeeded in flushing seven or eight of the insects, of which I captured five; once a pair in conjunction, both sexes being of the small, piceous form. It was really astonishing that pairs of this insect should lie so close under the comparatively small, tight-fitting flakes of bark, but on reflection I had to acknowledge that I had captured once over a score of the robust *Physocnemum brevilineum* pairing just as snugly in the interstices of elm bark. Newly felled spruce, then, in the latter part of June is evidently a breeding ground for this uncommon longicorn *T. cinnamopterum*.

I paid several visits to the spruce, but it was only on the 23rd and 24th of June that I found this beetle. My perseverance was, however, amply rewarded; on July 6th I captured near the axil of a broken branch a specimen of *Merium proteus*: it is hardly safe to generalize from a unique capture, but the date and habitat of felled spruce trunk are perhaps worth noting by Canadian collectors. The descriptions which refer to this insect as yellow-brown have evidently been taken from cabinet specimens: in the live insect, head and thorax are rich violet, and the elytra appear as though dipped in violet dye, the tinge of which may be caught anywhere on their surface if held in the proper light; the elytra being thinner and translucent, appear less dark in hue than the thorax whose density renders it quite opaque. The thighs are bright yellow, almost the shade of the root fibre of Goldthread (*Coptis trifolia*) and very conspicuous. This matter of coloration in published descriptions is very misleading. For instance, *Encyclops*

caruleus is spoken of as "blue" or "bluish." I have captured forty or fifty specimens of this beetle, and I never saw one that was not of a beautiful light-green shade with a texture as of silk. If, however, a specimen remains too long in the cyanide bottle, it will turn to a dull bluish colour, losing all the lustre of its surface. Again, *Anthophilax malachiticus* is really a rich and glittering green; it has a metallic lustre which reflects yellow and copper at certain angles, but I can find no trace of the "blue shade" of printed descriptions.

On June 24th a trip to the west edge of the "Wood of Desire" yielded me two specimens of *Leptura pedalis*; a unique specimen captured on the same shrub (a large bush of alternate-leaved dogwood) in 1916 had been my one and only hint of the insect's presence in the neighborhood; it was on this date and on this shrub that I captured my last *Microclytus gibbulus* of the season.

Work and weather prevented further records till July 2nd. On that day during a motor trip west of Chemong I visited a steep hill crowned with basswoods, and while examining the foliage of one of the biggest of these I captured a specimen of *Hoplosia nubila*, which roused me to a vigorous search in the hope of more. Presently on a dead branch jutting from the lower trunk I captured a second; I then got over the fence into an open field so as to be on the sunny side of the tree; on the fence I captured three more specimens, and finally located a dead limb of basswood lying high and dry on a bank of field stone under the tree; here *Hoplosia* was evidently breeding and I had most fortunately come jump with the hour of emergence. I captured altogether some twenty-five specimens on this limb and on rails of the fence beside it. A few days later I took six more at the same place and also captured about ten in other places. In the limb I found several larvae and an imago in the act of emerging. There seems no doubt that *Hoplosia nubila's* favorite food is dead basswood, and its tunnels are all near the surface, within or just below the inner bark. Several of my captures were made on newly felled basswood: it is probably here that ovipositing first takes place, and then, perhaps, the colony that emerges pairs and oviposits on the home-tree. An interesting observation was afforded by the capture of one specimen on a newly fallen maple: last season I took one on fresh fallen beech. Beech and basswood only are mentioned in Blatchley as hosts of *Hoplosia nubila*.

July 2nd was altogether a phenomenal day in my entomological year. Late in the afternoon on a "brush-head" of dead hemlock thrown on to a snake fence as top rail, I captured two strange weevils; they were several feet away from one another, both on the main stem; on minute examination they proved to be male and female: the male was 5 mm. long and its antennae were about three-quarters the body length; the female was 6 mm. long and its antennae only two-fifths the body. The insect was an anthribid, with a white snout, white scutellum, broad white patch near the elytra base, and a dainty little device in fawn-coloured pubescence on the thorax, shaped like a miniature fleur-de-lys or trefoil, otherwise the insect was almost uniformly black, not shining, but dull and rough; it proves to be *Gonotropis gibbosus*, an insect *sui generis* and of great rarity.

From the end of June I kept my eye open especially for *Lamiinids* of the *Acanthoderini* group. In 1916 I had secured quite a range of species on poplar, and an equally wide range had been reported to me as occurring on sumach; as the two ranges only partly coincide, I was anxious to get personal corroboration of both records this year.

I found *Hyperplatys* emerging as early as July 2nd from felled or dying poplar, and a few days later it became quite common, especially on balm of gilead. Two specimens, also, of what appears to be *Liopus variegatus* were captured on

fallen or felled trees of this species. I had taken thirteen specimens in 1916 on billets of poplar in a wood pile; there is no doubt that the insect breeds in the balsam poplar with us; a curious thing about my specimens is that they have distinct traces of ciliate fringe under the antennæ, especially on the third joints; many of them are as heavily fringed as *Hyperplatys*. I have specimens of *Liopus alpha* and *cinereus* captured in Ontario that are similarly adorned. Another peculiar feature is the colour; all my specimens of *L. variegatus* (var. *obscurus*?) are very dark grey, almost black. I strongly suspect that both ciliation and "melanism" are a question of latitude. For that reason I find the proportionate length of basal joint to the other joints in the hind tarsi a better test of generic character.

Examination of staghorn sumach during the first part of July resulted as follows: After July 5th many specimens of *Hyperplatys* were captured; a single specimen of *Goes oculata* was taken on a dead limb; a single specimen of *Leptostylus macula* on a bruised shoot; a specimen of *Torotus schaumii* on the foliage; a specimen of *Lepturges signatus* and about twenty specimens of *Liopus alpha* on the stems.

On July 11th while looking over some newly lopped branches of basswood on the edge of a grain field I captured *Hoplosia nubila*, and a specimen of that dainty little insect with the flying hairs—*Eupogonius subarmatus*. This last I have never found in Ontario except on basswood; more than ten years ago I captured two in the Rideau district on basswood; three or four years ago I took more than a dozen on basswood in the Niagara Glen (towards the end of July), and a few days later two specimens near Peterborough. I have never seen basswood given in any book as the insect's host, but generally elm.

Just after the middle of July we went into our usual camp on Cache Lake, Algonquin Park. I was greatly disappointed not to find any more specimens of *Leptura plebeja* this season on the spiræa blossom; the weather was not favorable for sun-loving insects that frequent flowers, but in other respects the captures this year were exceptionally good. And even in the matter of *L. plebeja* I have, as it proves, been extremely fortunate this summer of 1917. Towards the end of July, during a succession of very hot days, I made on my boathouse window several interesting captures including *Leptura sex-maculata*, *L. subhamata*, *L. biforis* and a small black longicorn that I bottled for *Typocerus lugubris*. On removing this last from the jar of moist sawdust in September, I found it had the antennæ annulate with pale brown and devoid of poriferous spaces; it proved, in fact, to be a *Leptura*, and almost certainly the male of *L. plebeja*. When compared with the four other specimens (all apparently female) of this beetle in my cabinet, the insect has two features of special interest, viz.: (1) Its much smaller size, (2) its entirely black abdomen, there being, on the under side, no traces of the brown outer segments that characterize the female.

Two species of *Acmaops* were taken on white pine in the third week of July; a specimen of *Leptura sex-maculata* on July 18th; a specimen of *Leptura pedalis* and several of *L. chrysocoma* (on spiræa) in the fourth week of July; also an unidentified species of *Leptura* (on yarrow). During the last week of July and for three weeks of August *Leptura subhamata* was found abundant on spiræa and elsewhere. After Aug. 5th *Leptura canadensis* became common, both sexes being taken on spiræa blossom and on dead pine and balsam. I notice that these sun-loving *Lepturids* which frequent blossoms seem to prefer standing to fallen timber, and the upper side of branches, whereas the shade-loving *Lamiinids*, *Monohammi* and others that are not attracted to blossoms, crowd to fallen timber and the under side of the limbs. Among *Lepturas*; it was an agreeable surprise this year to

capture quite frequently specimens of the uncommon *Leptura biforis*; I took eight in the second and third weeks of August. A curious thing about the species is that it does not seem to share in the *Leptura*'s generic love of pollen; it is the only species I have never seen on blossom; on the other hand I have more than once captured it settling on newly felled white pine, and nearly all my captures this season were made in front of the tent, the insect flying across the open in the immediate neighbourhood of a large white pine.

For a native of Perthshire, I celebrated the opening days of the grouse shooting season very appropriately: On August 12th I made the largest bag of the season and in some ways the most interesting, while on the 15th I included in my bag of ordinary game a prize as rare as the Capercaillie would be on a Scottish grouse moor—a beautiful specimen of *Monohammus marmorator* ♀; it was captured on a windfall (fresh this season) of balsam fir, while ovipositing on the upper side of the trunk, near a branch axil. It is only the third specimen I have seen in twelve years; my first was captured similarly on fallen balsam near the Village of Lanark, Ont., and the second near Port Hope: all three in my collection are females; the species is recorded as fairly common in the Lake Superior region.

For my last note of the season I shall revert to my captures of August 12th. It was an ideal day for collecting; very hot, bright, and perfectly calm. A party of six or eight of us had paddled up the Madawaska to White's Lake and were lunching on a slope by the shore. It is a favorite spot for picnics, which unfortunately explains how it came to be partly burned over a few years ago. Dead trunks of hemlock, balsam, spruce, pine and birch still stand up among the raspberries that have encroached on the scene of the fire; the rest of the point was saved by the fire rangers' heroic efforts, and it was at the edge of the burnt space, in a hemlock grove with a few scattered pine, spruce, and balsam, that we were lunching. Just after our meal, as my thoughts stole guiltily in the direction of my insect net, I saw something that sent my fingers clutching suddenly for the cyanide bottle: a log-runner (*Xylotrechus*) racing madly up a limb in the direction of the trunk; unfortunately the limb he had chosen to exercise on was the thigh of one of the least entomologically minded members of the party, or the longicorn might either have escaped or at any rate died gloriously without being mutilated, but before I could interfere a horny hand descended in a shower of blows on the "pesky yellow-jacket," and the next moment it lay on the ground "a trunk and a head torn from the shoulders," though not "a body without a name"—*Xylotrechus undulatus*. I was soon busy examining all the standing balsam on the edge of the grove, especially trees that showed signs of languishing and had their trunks in the sun, for it had always been on such trees that I had taken this insect: indeed, only a fortnight before I had captured five on the upright shaft of a dying balsam at Head Lake. Soon my search was rewarded by the capture of six specimens, at the same time I noticed large numbers of *Melanophila fulvoguttata* and two species of *Chrysobothris* settling on hemlock—living trees on the sunny edge of the grove. A close scrutiny of their trunks presently revealed a pair of *Xylotrechus undulatus* mating on the bark and two or three single specimens basking in the sunlight. Before we returned to our canoe I had captured (nearly all on hemlock) sixteen specimens of the longicorn and some thirty-five of the buprestids. On the same day I secured one specimen of *L. subhamata*, two *L. biforis*, and nine *L. canadensis*.

At no other time or place have I seen *X. undulatus* on hemlock, and I fancy the fire is responsible primarily for the prevalence of these woodborers: it has not only killed and wounded a great deal of timber, but has exposed a wide space to

the combined action of wind and sun; this has meant greatly increased ovipositing in a restricted area, and as part consequence of such "intensive culture," *Xylotrechus undulatus*, first bred in balsam, has then tackled the neighbouring and not very alien trunks of hemlock, much as the apple web-worm advances from orchard to forest trees in search of fodder as soon as its native pastures begin to fail.

DIVISION No. 6, ESSEX DISTRICT—J. W. NOBLE, DEPARTMENT OF AGRICULTURE,
ESSEX, ONT.

ATTACKING FIELD CROPS.

WIREWORMS, WHITE GRUBS, CUTWORMS. Considerable damage done to the strawberry beds and spring crops by white grubs; the damage from wireworms and cutworms, however, not so great as in an average year. Adults of all species quite common.

ATTACKING FRUIT TREES.

CODLING MOTH. Very plentiful on apples and pears in uncared-for orchards, very little damage where spraying was practised. Considerable second brood.

PLUM CURCULIO. Considerable damage to plums, to a less extent to apples.

SAN JOSÉ SCALE. Still quite plentiful in neglected orchards on hawthorns and some other shrubs, completely controlled in cared-for orchards.

TENT CATERPILLARS were not common, only a few nests observed during the season. Fall web-worms plentiful, some orchards averaging two webs to a tree.

APHIDS. Quite common but more especially troublesome on small vegetables.

PEACH TREE BORER. Has ruined a few orchards this year; seems to be plentiful and rather on the increase.

ATTACKING SMALL FRUITS AND VEGETABLES.

MELON APHID AND CUCUMBER APHID. From these insects we suffered a great loss in Essex County this year. Cucumber aphids were responsible for 75 acres of cucumbers being plowed up. In fields where spraying with tobacco decoction was commenced in time no harm resulted. Some patches were sprayed as many as five times. Two cases came under my notice where the plants were dusted with tobacco flour, spraying being done by two men, one holding the vine while the other did the spraying and the plants were killed. Bees were restrained from visiting the blossoms and the patch had to be plowed up. Melon aphids also killed a large acreage but were controlled by some of the best growers of large plantations by the use of tobacco water, 1 lb. to one gallon.

ONION ROOT-MAGGOT. This insect did a large amount of damage in the onion marsh and experiments in this county did very little to control its ravages.

ONION THRIPS. Again very common and harmful. No results from spraying this year.

CABBAGE ROOT-MAGGOT. Very little damage by cabbage root-maggot owing to wet weather during the season the flies were laying eggs.

ASPARAGUS BEETLE. These seem to be becoming very common and have done considerable damage by making stems unmarketable.

BEAN ROOT-MAGGOT. Although considerable damage was done in other sections no reports of injury were received from this county.

TOBACCO WORM. Very common: controlled in a great many instances by spraying with arsenate of lead, considerable number trapped by poisoned Jamestown weed.

GRAPEVINE FLEA-BEETLE. Common in what small acreages are grown.

CURRENT SAW-FLY. Very common on currants and gooseberries that were not sprayed with hellebore.

GREENHOUSE INSECTS.

Considerable damage was done to tomatoes by eelworms (*Nematodes*). This was effectively controlled in some cases where it has been bad in previous seasons by the removal of the soil to a depth of about 8 inches. The general greenhouse pests seem quite active this year including aphids and greenhouse white fly: cucumber beetles doing considerable harm. Hydrocyanic gas was used for the first time in a number of greenhouses for the control of white fly.

DIVISION No. 7, NIAGARA DISTRICT—W. A. ROSS, DOMINION ENTOMOLOGICAL LABORATORY, VINELAND STATION, ONT.

In spring and early summer, the weather was abnormally wet. At Vineland the precipitation for April, May, June and July was 16.56 inches.

Early in the season, due to the unfavourable meteorological conditions, there was a paucity of insects; later on, however, they became quite abundant. An unusually large number of insect outbreaks were reported to me. Some of the outbreaks were real but many of them were imaginary.

INSECTS INJURIOUS TO FIELD CROPS.

THE WHEAT MIDGE (*Utonida tritici*). On July 18th, I was called upon to investigate what was supposed to be a serious outbreak of wheat midge in the Niagara Peninsula. I found the pest generally distributed throughout Welland and Lincoln counties and I understand that it was also present in other parts of the Peninsula. Here and there where the wheat was backward, the midge was abundant, but on the whole, the infestation was very light.

In three of the worst infested fields, I found by counting the plump and shrunken berries that about 35 per cent. of the grain was more or less shrivelled. In heads containing 1,357 kernels 1,001 maggots were found, the number of larvæ per infested kernel varying from 1 to 10.

In a rearing cage in which infested wheat heads had been placed, one adult midge emerged on August 10th.

THE GRAIN APHIS (*Macrosiphum granarium*). During the latter part of July the grain-aphis came into prominence. It was very abundant on oats in certain sections of this district and produced so much alarm among grain merchants that, according to a St. Catharines dealer, the price of oats jumped ten cents. I looked into this outbreak, and, as I expected, found that the reports of serious losses being caused by the insect were without foundation. Natural checks—hymenopterous parasites, ladybird beetles, syrphid larvæ, *Entomophora* etc., as usual prevented any serious injury.

THE OAT MIDGE. The grain-aphis was succeeded by the oat-midge which, according to report, was destroying all the oats in the neighbourhood of Port Robinson. This depredator proved to be oat stemens.

THRIPS ON CLOVER. The blood red larvæ of *Haplothrips statice* Hal. were decidedly abundant on the heads of alsike clover in the vicinity of Ridgeway, but, so far as I could make out, they did not cause any appreciable injury to the crop of seed.

My attention was directed to this insect because the farmers mistook it for the notorious clover-seed midge.

THE CLOVER SEED MIDGE (*Dasyneura leguminicola*). In August, I was asked by a Vineland farmer to look at a field of red clover which was blooming very irregularly. On examining some of the clover heads numerous pinkish larvæ of the clover seed midge were found within the flower tubes. According to an estimate I made, at least 44 per cent. of the florets were infested or in other words 44 per cent. of the seed crop was destroyed.

THE CLOVER SEED CATERPILLAR (*Laspeyresia interstinctana*). This species was common on alsike (Ridgeway, July 27th) and on red clover (Vineland, August).

THE SEED-CORN MAGGOT (*Pegomyia fusciceps*). This species was very destructive to beans in Welland County.

FRUIT PESTS.

As Prof. Caesar in his report on "Insects of the Year in Ontario" will deal fully with the fruit insects of the Niagara Peninsula, I shall confine my attention to three species.

THE WHITE-MARKED TUSsock MoTH (*Hemerocampa leucostigma*) was unusually abundant on orchard trees, and a considerable amount of injury was done to apples by the larvæ gnawing into the fruit.

N.B.—The calloused blemishes on apples to which I referred in my report for 1916, are undoubtedly the work of this insect.

THE PEAR PSYLLA (*Psylla pyricola*) was very abundant and injurious in certain parts of the district.

THE APPLE MAGGOT (*Rhagoletis pomonella*): As the apple maggot is rarely destructive in the Niagara district, it is worth while mentioning that this insect was decidedly injurious in a small apple orchard near Vineland.

MISCELLANEOUS INSECTS.

CHERMES. The Spruce Gall-louse *C. abietis*, which in the last few years has been comparatively scarce, was abundant this past season on Norway Spruce.

CHERMES PINICORTICIS was very conspicuous on young white pines near Stoney Creek.

WOOLLY-BEAR CATERPILLARS were remarkably common this fall. Complaints were received about them attacking raspberry bushes.

In a Hamilton greenhouse, the YELLOW WOOLLY-BEAR (*Diacrisia virginica*) attacked and skeletonized the foliage of Chrysanthemums.

FURTHER NOTES ON THE IMPORTED ONION MAGGOT (*HYLEMYIA ANTIQUA* Mg.) AND ITS CONTROL.

ARTHUR GIBSON, CHIEF ASSISTANT ENTOMOLOGIST, ENTOMOLOGICAL BRANCH,
DEPARTMENT OF AGRICULTURE, OTTAWA.

In Entomological Bulletin No. 12 of the Dominion Department of Agriculture, the imported onion maggot is discussed on pages 29 to 32 and its control under field conditions on pp. 47 to 49. Since the publication of this bulletin in May, 1916, further observations on the overwintering habits of the

insect have been made and investigations directed towards controlling it under field conditions.

In the spring of 1916, a special search was made for the puparia in land near Ottawa which had been used for onions in 1915. On April 25th, one puparium was found in the soil at a depth of $4\frac{1}{2}$ inches. On April 28th a further search was made with the following results:—

1 puparium found at a depth of 3 inches					
1	"	"	"	$3\frac{5}{8}$	"
1	"	"	"	$4\frac{3}{8}$	"
2	"	"	"	$4\frac{3}{4}$	"
1	"	"	"	$4\frac{7}{8}$	"
1	"	"	"	$5\frac{1}{8}$	"
1	"	"	"	$5\frac{3}{8}$	"
1	"	"	"	$6\frac{1}{8}$	"
1	"	"	"	$6\frac{3}{8}$	"

Altogether on the above two days, 11 healthy puparia were found at depths in the soil ranging from three inches to six and three-eighths inches. In addition other puparia were collected but as these were within five inches of the surface, the exact depths were not noted. A close watch for larvæ was kept but none were observed.

The flies from the above puparia emerged during the period, May 12th to 18th.

The above observations bear out our previous supposition that the usual stage in which the insect winters in Canada is the puparium stage.

CONTROL EXPERIMENTS.

Poisoned Bait Spray Used.

The poisoned bait spray which has been used in our experiments in 1916 and 1917 is the one referred to in our Entomological Bulletin No. 12, as follows:—

Sodium arsenite	5 grams (close to $\frac{1}{4}$ oz.)
Molasses	1 pint.
Boiling water	1 gallon.

The sodium arsenite was first dissolved in the boiling water and the molasses then added. When the mixture had cooled it was ready for use.

In both years we used a plot one-half acre in extent. In 1916, our work was largely interfered with owing to rains which fell, in several instances soon after the applications were made. Notwithstanding, however, such adverse weather conditions the results from the experiment were certainly of a very promising nature. In 1917, the experiment was continued on the same farm and our results were indeed most satisfactory. Applications of the poisoned bait were made by Mr. I. T. Barnet, who assisted in this work, on June 13 (plants about four inches high) 20th and 27th, and July 4th and 16th—five applications in all. On this latter date the onions were about one foot high on the average and were making such rapid growth that it was decided no further applications would be advisable. The flies were readily attracted to the bait and on occasions, a day or two after the mixture was applied, dead flies were easily found which had fed upon it.

The mixture was applied as coarse drops from a watering can with a small hose. The half-acre plot was quickly gone over. Mr. Barnet began at one end

and walked diagonally across the crop continuing from one side to the other in a V-shaped manner, the strips where the liquid would fall being about 15 feet apart at the wide end.

From the half-acre plot 145 bags of good onions were harvested. The stand was certainly an excellent one considering the season. In two other nearby plots of the same size, which were not sprayed, the work of the onion maggot was readily seen and it was estimated that 20 per cent. of the plants were infested.

These experiments were conducted on the farm of Mr. I. A. Farquharson, near Rivermead, Que., which is close to Ottawa. We are very grateful to Mr. Farquharson for allowing us the use of his plots and for his kindly interest and assistance in our work.

The cost of controlling the onion maggot with the above mixture, under conditions prevailing in 1917, was about \$1.10 per acre. This estimate includes the cost of the ingredients, as well as a charge for the labour required to apply the five applications. In cases where areas containing several acres were to be treated, the cost per acre could, we think, be somewhat reduced.

From the work which has been done near Ottawa, the results of which correspond with similar work accomplished elsewhere, it seems to us that the commercial grower of onions, in districts where the onion maggot is a regularly occurring pest, should test out the value of the mixture under his immediate local conditions. The cost of the materials is slight and the mixture can be applied quickly even where a number of acres are to be treated. One acre can be treated in less than ten minutes.

PROF. CAESAR: What is the formula for the poison bait referred to?

MR. GIBSON: Five grams sodium arsenite, one pint cheap molasses, dissolved in one gallon of boiling water. We did think of trying mixtures containing slices of onion, which by some were thought to make the bait more attractive to the flies, but we did not think this would make any appreciable difference.

PROF. CAESAR: Is there any injury to the plants by the sodium arsenite and molasses, and also will you tell me just exactly what you mean when you say that it is spread diagonally on the field?

MR. GIBSON: There was no injury to the plants from the use of this mixture. So far as the method of spreading the bait is concerned, the operator walks across the field at one end, and continues crossing the field back again to about fifteen feet from where he first started, so that it is spread over the field in a V-shaped way.

PROF. CAESAR: Backwards and forwards?

MR. GIBSON: Backward and forwards across the field. It is not necessary to apply it all over the onion patch. It is usually applied in the form of large drops.

PROF. CAESAR: And the flies feed on the drops?

MR. GIBSON: Yes. We found them feeding readily on the mixture.

PROF. CAESAR: Was there any difference in the amount of infestation in the adjacent rows of the adjoining plots?

MR. GIBSON: We found the infestation in the adjoining plots to be rather evenly divided.

PROF. CAESAR: My idea was that in those adjacent patches you would expect less infestation than you would get further away, for the reason that the insects would be nearer the bait and would therefore be controlled by it, to a greater extent. For this reason of course you can always get better results by treating large areas.

MR. GIBSON: The chief object, of course, is to control the outbreak early in the season, that is to say during the pre-oviposition period.

MR. BRITTAIN: How long is that period?

MR. GIBSON: In the onion maggot about ten to fourteen days; in the cabbage maggot six to seven days.

MR. BRITTAIN: I have tried controlling the cabbage maggot by poison bait placed in shallow pans. The eggs of the maggots were on every plant in the field. I believe that Mr. Sanderson and his staff were working on the onion maggot in the same way, and he claims that their results were very successful. An account of this appears in the last report they got out. They made this treatment in the pre-oviposition period.

THE ENTOMOLOGICAL SERVICE OF QUEBEC.

GEORGES MAHEUX, PROVINCIAL ENTOMOLOGIST, QUEBEC.

From an entomological standpoint, America presents this difference from Europe, that she gives hospitality to a greater number of parasites. Even if they are imported from the old countries, these parasites are working more havoc here than in their place of origin. The New Continent, however, affords the Old World a striking example in regard to the creation and organization of various services susceptible of helping the public and more particularly offering appreciable advantages to the agricultural community.

Whilst over there private initiative is often left to its own resources, on this side of the Atlantic, governments, following a different policy, endeavor to give birth to movements, to guide and support them. Thus, it becomes comparatively easy to avoid dangers and to attain the aim in a quicker and safer way.

And we could not find a more convincing illustration of this statement than the creation of the numerous entomological "bureaus" already in operation in North America.

HISTORY. It was in the year 1913 that the Government of the Province of Quebec entered this path. Consequently, the history of her entomological service is rather short. In fact, it is hardly four years since our regulation *for the protection of plants* was voted and assented by the Legislature. Nevertheless, the appointment of a Provincial Entomologist dates back from the year before, and it is a disciple of the pioneer of entomology in our Province who became the titular of this post.

It is, indeed, Provancher, this great apostle of science, who stirred up and developed in my predecessor the love for natural history and who lead his first steps. L'Abbé Huard was admirably well prepared to fill the important function to which he had just been appointed. A perspicacious observer, advised naturalist, indefatigable collector for more than thirty years, author of a treatise of Zoology, director since twenty years of *Le Naturaliste Canadien*, curator of the Provincial Museum, he had been good enough to place at the disposal of his country, his extensive knowledge, his wide experience and to devote the last years of his active life to the agricultural class. He organized the Bureau of Entomology, wrote out the law *For the Protection of Plants*. In June, 1916, he published quite a considerable bulletin on "Les Principales Espèces d'Insectes Nuisibles et de Maladies Végétales." But his health, shaken by incessant labour, not allowing him outside excursions, was betraying his energy, and he had to withdraw to a less disturbed life in the month of July of the same year.

The writer of these lines was called upon to succeed him. This was rather a heavy burden for young shoulders to support, but youth has great boldness, and this proverb is often true that says "*Audaces fortuna juvat.*" Confident in the truthfulness of this Latin proverb we have assumed the task and have set to work. Our programme may be summed up as follows:—

INSPECTIONS. The vegetation season requires our presence nearly everywhere in the Province. According to the law, the entomologist must, in the first place, make the official inspection of commercial nurseries between June 15th and September 15th. There are presently about ten large nurseries and some thirty of small or medium area, most of them connected with the Fruit Stations of the Department of Agriculture. These visits require a good part of the summer. Meanwhile, we have to answer to the alarm calls uttered here and there by unfortunate proprietors fighting against an invasion of insects; in most cases we have to take a trip to the battlefield with a view to bringing into action the army of remedies. Occasionally, these trips will afford the chance to make experiments on the control of various insects. Moreover, instructors, disseminated all over the Province are charged with visiting orchards and gardens and have to report—on special forms—on insects which are found by them. This enables us to judge with perfect knowledge as to the territory which requires our efforts.

PROPAGANDA. In a country still young, particularly in the implanting of new ideas, the key to success lies in the education of the people. Our desire is to acquaint all growers with the enemies of their plants, we are desirous to familiarize them with the best preventives and remedies; finally, we are anxious to convince them of the imperative necessity of following our advices without any delay.

This is a work of propaganda, work that is often lengthy and the success of which is depending, in short, on the sole virtue of perseverance. Once this result will have been obtained, we believe that the struggle against injurious insects will be on the eve of being general. With a view to reaching this end, we endeavour to collaborate to all publications which are circulated amongst the agricultural mass. We also take advantage of bulletins, circulars and lectures. Even fairs or exhibitions have been given a test as a means of teaching the public, and I think I am right in saying that this initiative has met with fruitful results.

COLLECTIONS. In concurrence with our inspection trips, we gather the elements of an economical collection that will remain the property of the Department of Agriculture. In this work, I am pleased to say, several collaborators give us their valuable help. I will particularly mention the instructors of the Horticultural Service and the officers of the Forestry Branch to whom the entomologist is indebted for many specimens. In connection with this collection work, we will mention the fact that we aim to the instruction of the young people of rural schools and that we encourage the formation of small collections for school museums. The child's curiosity is very much aroused by this interesting work; when he has grown a man, with greater knowledge, he will be better equipped to enter the struggle. Besides, we will have printed, very shortly, for primary schools, a series of wall maps or posters showing injurious insects and the means at our disposal to combat them; in this manner, we expect to be able to vulgarize rapidly amongst school pupils the elementary knowledge of plant protection.

Our collection comprises the six following items:—

1. Insects injurious to vegetables.
2. " " fruit trees and shrubs.
3. " " cereals.
4. " " forest and ornamental trees.
5. " " animals, men, houses.
6. " " miscellaneous.

GENERAL WORK. The office work necessitates quite a voluminous correspondence if one thinks that the service is a new departure and the question a recent one, at least officially, in this country. Every day provides its share of inquiries of all kinds, chiefly looking for information as to the remedies to be applied in the case of some injurious insects. We see to it that the laws regulating our service are carefully observed and lose no opportunity of trying to complete this regulation. We will submit, within a short time, to the approval of the Hon. Minister of Agriculture, a project of by-law intended to regulate the sale of fruit trees and shrubs.

Here, I take the liberty to make a suggestion. I am of the opinion that our work will never bear good results and many efforts will be lost if we do not have, in the near future, a general by-law obliging every grower to spray his cultures. This is practised in several countries, with success and the same regulation could be enforced in Canada. In the fight against some species which are largely spread, we enroll school boys and girls; the results obtained have proved excellent and will be more so in future. Our Department relies on the Federal Branch for the making of experiments and researches; however, it does not fail to do its share and efficiently co-operates with Ottawa. Finally, we are working in close harmony with the Chief of the Horticultural Service, who does his utmost to procure to the Horticultural Societies or to their members, the best kinds of sprayers at fair conditions. The same method applies to insecticides.

To conclude, I will say that we are now organizing in Quebec, an Entomological Society which will soon be in operation. When this is an accomplished fact, we will come and ask our affiliation to your society. I am sure in advance that our request will be favorably received. The mother society which is yours, could not refuse to adopt a new daughter without losing her distinctive character.

But this shall not be and we will work in co-operation with you to enlarge and make prosperous the Entomological Society of Canada.

PROF. LOCHHEAD: Mr. President, I should like to say a few words about the good work done by Mr. Maheux. I have been in a position to see some of his work, and also the work of the Department at Quebec. I knew his predecessor, Abbé Huard, very well, and I was delighted when Mr. Maheux was appointed. I should like to say a few words to those from the West regarding entomology in Quebec—what is being done by our friends and by the Department at Quebec. We have, I think, under-estimated the work done in Quebec in the past. I do not know if you are aware that Canon Huard has written a very interesting article for the Quebec Society for the Protection of Plants Report, giving the history of economic entomology in Quebec. He says that there is no province in the Dominion where more entomological work has been done than in this Province. He refers to the various reports that have been published by the Department: to Provancher and his works; to different systematic treatises that have been published since his time: to the various collections of insects, etc., in the Province, of which he mentions that he knows personally of 20 collections in large seminaries; but he left the impression that there are far more than this if we could only

find them out, for there are many silent workers in all parts of Quebec who are adding to the store of knowledge, working among plants and insects. Some of these workers have come from France; they have introduced this science into Quebec in the schools, and the work of Mr. Maheux at the present time is not, therefore, what we may call a new work. Probably Ontario got a little ahead in having a Provincial Entomologist, and in some other enterprises, but we must not conclude that because Ontario is ahead along certain lines it is ahead in every line. We have only to go through some of the museums in Montreal—Laval, McGill and some of the other colleges—to see what has been done. As an Ontario-born man I wish to acknowledge the great work Quebec has done in entomology.

PROF. CAESAR: I should like to congratulate Mr. Maheux on the programme of work that he has made out for himself. I consider it a very adequate one, and it contains a number of suggestions that I think other provinces would do well to adopt. I was much interested in what he said about the work in the public schools; I have seen the charts he refers to, and I think they are particularly good, and the coloring is true to nature. They should be a very great source of value, and the children should learn more easily by this method, thus making it easier for the teacher. Some of his remarks, too, I think might be of use in connection with the subject of how entomologists can help in the production and protection of food supplies. I welcome Mr. Maheux as a brother provincial entomologist; I shall be very glad to co-operate with him and expect to receive from him help that will be of much value. I am sure we are all pleased to welcome Mr. Maheux among us as one of our members.

SOME IMPORTANT INSECTS OF THE SEASON.

L. CAESAR, O. A. COLLEGE, GUELPH.

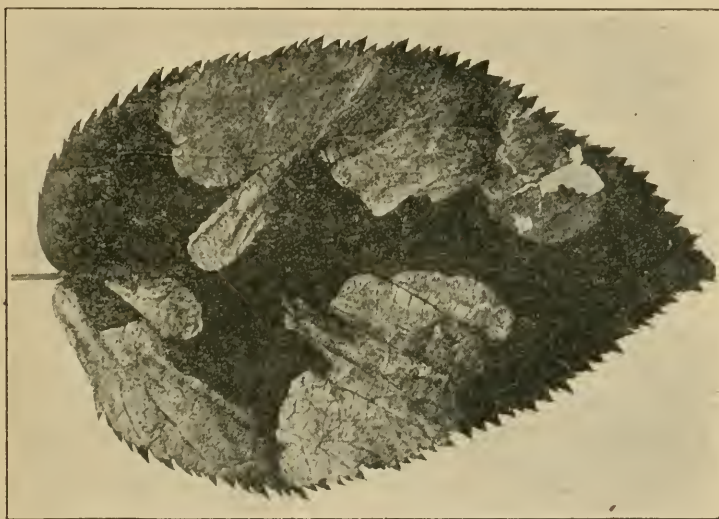
THE BLACKBERRY LEAF-MINER (*Metallus bethunei*, MacGillivray).

From time to time the last ten years there have been outbreaks in Southern Ontario of a Blackberry Leaf-miner, which Dr. A. D. MacGillivray says is a new species, *Metallus bethunei*—very closely allied to *Metallus rubi*. So abundant are the insects in these outbreaks and so many mines are made in the leaves that whole fields of blackberries look as if blighted. One of these outbreaks occurred this year at Burlington on Snyder blackberries. When last visited, October 20th, fully 60 per cent. of the total leaf surface was mined and numerous larvæ were still feeding.

LIFE HISTORY. No special attempt has been made to make a close consecutive study of the life-history, but from notes made since 1910 the following facts are gleaned: There are two broods in a year; the adults of the first brood in warm seasons begin to appear about July 1st, but in cooler seasons are evidently considerably later. Eggs are laid in the tissues of the leaf, chiefly beside the main ribs. The female inserts her ovipositor through the upper surface and forces it down to, but not through, the lower epidermis and the egg is placed close to this. Eggs are very pale white or almost colorless, oblong and slightly curved. They swell before hatching and the lower epidermis, thus raised, shows clearly even to the naked eye where they are placed. I counted 61 eggs on one leaf. Mr. Aiton, my assistant, counted 150. The larvæ soon after hatching begin to make irregular shaped mines, and by the time the fruit is ripe (as

judged by this year) the larvæ of the first brood are for the most part full grown, and have begun to leave the mines and enter the soil, where they construct a firm little oval earthen case about 5 mm. long by 4 mm. wide. Inside this they pupate. The cases found were from 1 to 2 inches below the surface. The adults of the second brood begin to appear after a couple of weeks and this year were still present in countless numbers by September 21st. Egg-laying was then at its height. A few larvæ of the second brood can be found in leaves as long as these remain green. I found them at St. Catharines one year near the end of November. Most, however, have entered the soil long before this and constructed their earthen cocoons. The winter is passed in these in the larval stage.

Fortunately, this pest does not begin to injure the leaves until two or three weeks before the fruit begins to ripen, and much of the fruit, at least this year, was off before the mines of the second brood were made. Yet in spite of these



Work of Blackberry Leaf Miner.

factors the insect must do considerable damage in the way of weakening the plants and lessening next year's crop. It certainly makes the owner much alarmed lest it will ruin all his plants.

METHODS OF CONTROL. Cultivation of the soil in late fall and the early part of the next season suggests itself as a practicable method of control, but is ineffective; probably because the cocoons are not easily broken.

It has been suggested by some writers that kerosene emulsion would penetrate the dead portions of the leaf and kill the larvæ, but it does not do so. Black-leaf 40, as shown by Herrick, will kill the larvæ of some Saw-fly Leaf-miners in their mines, but it has no effect upon this species.

Having failed to kill the pupæ or larvæ I next thought it possible to poison the adults. These apparently remain exclusively on the leaves and find their food there. I do not remember seeing one anywhere else, not even on the fruit, neither does Mr. Aiton. Accordingly I made a preliminary test of spraying the leaves with sweetened arsenate of lead and to my delight the adults could almost at once be seen feeding upon it. Encouraged by this, I assigned to Mr. Aiton the

task of making definite caged tests with large cheesecloth cages over individual bushes. Cheesecloth was placed also over the ground beneath these cages to make counting dead flies practicable and also prevent new adults coming up out of the soil.

The cages were as follows:—

- Cage 1.—Bush sprayed with arsenate of lead in water sweetened with molasses.
- Cage 2.—Bush sprayed with arsenate of lead in water without sweetening.
- Cage 3.—Bush sprayed with calcium arsenate in water without sweetening.
- Cage 4.—Bush unsprayed as check.

In each cage 60 adults were placed.

Results at end of 30 hrs.

Cage 1.—13 dead.
 " 2.—12 "
 " 3.—25 "
 Check 0 "

Results at end of 52 hrs.

Cage 1.—53 dead.
 " 2.—51 "
 " 3.—60 (all) dead.
 Check 8 dead.

Results at end of 72 hrs.

Cage 1.—58 dead.
 " 2.—60 (all) dead.
 " 3.—60 " "
 Check 18 dead.

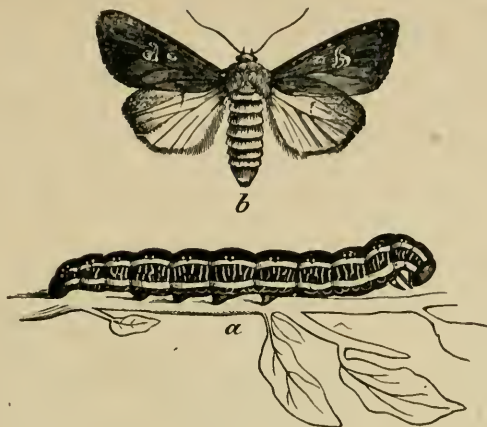
From these tests it seems quite clear that this species of Saw-fly can be poisoned in the adult stage and that molasses is not necessary for the purpose. The question then arises as to when to do the poisoning. It will have to be done before the adults appear in July, and it seems to me the proper time will probably be just before bloom, or just after most of the blossoms are off and the fruit is still so small that there will be no likelihood of the poison being on it when ripe. A second application will possibly be advisable just after picking. Arsenate of lead will probably be the safest poison and if applied heavily without molasses should remain on the foliage for a month or more. Arsenate of lime kills more quickly but would be more likely to injure the foliage, though none of the spraying either in cages or on the part of the row I treated myself, even where molasses was used, caused burning.

I hope to make a careful trial of the poison treatments this coming year and to give a further and more definite report next year.

ZEBRA CATERPILLARS (*Ceramica picta*).

In September and October of 1916 there were several turnip fields in Peel County and probably in many other unreported parts of the Province that were severely injured by the Zebra Caterpillar. As it is rare that this insect becomes very numerous I did not expect it to cause much trouble this year, but to my surprise it has been very abundant in many counties west of Toronto and has stripped many a turnip field of all or almost all its foliage. Many fields were thus defoliated by the end of September, thus preventing almost a whole month's growth. Cabbages were also attacked. The larvæ were found feeding on several other plants.

Five kinds of control measures were tested, but only one proved at all satisfactory, namely dusting with Paris green mixed with 20 times or more its bulk of air slaked or hydrated lime. Any other fine, moderately heavy substance such as land plaster should do as well as the lime. I thought that possibly the

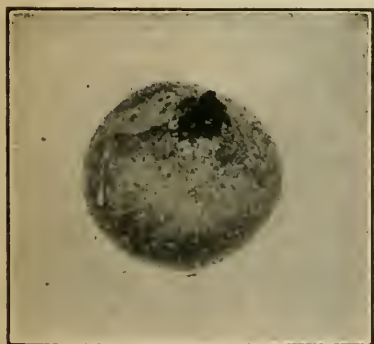


Zebra caterpillar and moth.

poison bran might work, though the feeding, or rather the resting habit of remaining on the leaf except in wet weather, made it doubtful whether they would ever seek or find the bran. The result showed that while a few did come in contact with it and died, about 90 per cent. did not.

CODLING MOTH (*Carpocapsa pomonella*).

A remarkable thing about this insect this year was the great number of side injuries it caused all over the Province. This was especially noteworthy in Niagara, because most of the side injuries there are ordinarily caused by the second brood and are made during August and September, but this year about



Dark castings at calyx end, showing where Codling Moth larva usually enters the apple.



Adult Codling Moths, natural size. (After Slingerland.)

90 per cent. of these were to be seen by about the first of August. I have notes on this subject made on August 4th and again on September 15th and October 20th, and the estimate of the percentage of injured fruit on the first date is almost the same as on the last. This shows that it was the first and not the

second brood that was responsible for these side injuries, in fact there was only a very small second brood this year even in Niagara district.

It seems to me we may possibly account for the larger number of side injuries this year in two ways. (1) There were very few apples and hence more larvæ would attack these apples than if there were a larger crop. (2) Many of the moths emerged very late and laid their eggs after the pubescence was off the little fruits, and in the absence of this entered the side of the apples much more readily than if the pubescence had been present. A poison spray three weeks after the blossoms fell gave good results this year in all cases where it was well applied.

THE WHITE-MARKED TUSSOCK MOTH (*Hemerocampa leucostigma*).

Judging from the number of egg masses to be seen this autumn the Tussock Moth will be very abundant in many of our cities and larger towns next year. Complaints have already come in from as far east as Belleville and as far west as Goderich. In Toronto I counted 500 egg masses on a single maple tree in the Exhibition Grounds.

Not only are the egg masses abundant in cities and towns but also in many orchards. One wide awake young fruit grower said to me a few days ago that in his opinion this would be one of our main orchard pests next year in Western Ontario. In Niagara it is likely to do a good deal of damage and if it is not destroyed will in apple orchards injure a large percentage of fruit.

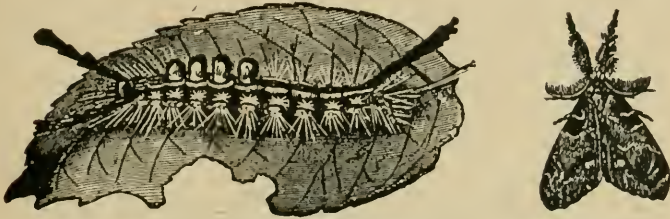


Work on apples of the larvæ of the White-marked Tussock-moth.

In destroying the insect in orchards and for that matter also on shade trees, a person is very likely to overlook the egg masses concealed in leaves. This spring I asked my men to remove the eggs in one of our experimental orchards, but did not call their attention to the leaves. On visiting the orchard again I saw that these had been overlooked so that the work had to be done again. Mr. W. E. Biggar, the Provincial Fruit Pests Inspector, has used a small wire brush about six inches long and one inch wide and fastened to the end of a pole. A single stroke of this tears the egg masses to pieces. This brush has been used in St. Catharines and some other places and given satisfaction. In my opinion it is very good for the lower part of trees to the height of say 15 or possibly 20 feet, but above that I think a hook, especially if toothed along the sides and ends, will prove better. A test of crude creosote was used, but it seems to me

this will prove very unsatisfactory. I cannot help believing that it does not penetrate through in many cases and so does not kill all the eggs, at any rate it did not seem to me to have done so even when eggs were examined several days after treatment.

The removal of egg masses when numerous on tall trees is a very great task. I observed that many of them, in fact a very considerable percentage, were situated near the top of the trees in the crotches of branches, often not more than one inch in diameter. Fortunately, egg masses seem on lateral branches to be situated either in the crotch or on the underside, not on the upper side and so can readily be seen. Some, of course, are in leaves attached to twigs or branches. It is very doubtful whether in badly infested city parks spraying would



Larva and adult male of White-marked Tussock-Moth.

not be much cheaper than removing and gathering egg masses. I have written to two firms to see whether we cannot secure at a reasonable price good outfits that will throw a satisfactory spray from the ground to the top of the tallest trees. I do not mean the costly type of outfit used in the Gipsy Moth work. Both companies claim that they can furnish machines that they believe will prove satisfactory.

I should like information from anyone present as to what percentage of eggs would hatch from egg masses removed in late autumn or winter but left lying on the ground, also as to their experience with crude creosote on egg masses.

SLUGS.

I have never seen so much damage from Slugs as this year. Beans were their favorite food, and these in many fields were fed upon ravenously and in some cases almost defoliated. Paris green as tested by myself and also by Mr. Baker failed to control them. Lime was not available in the district where I was, but hydrated lime as applied late in autumn killed them if used freely. I am not sure whether it would prove satisfactory on a large scale in spring or early summer when they are most destructive. Lime-sulphur will kill but not at the strength the plants are likely to stand without injury.

THE SEED CORN MAGGOT (*Pegomyia fusciceps*).

This insect caused much injury to beans in many districts.

THE WHEAT MIDGE (*Contarinia tritici*).

Wheat in Wentworth, Lincoln, Welland and Haldimand suffered considerable loss from the Midge. In some districts about 10 per cent. of the kernels were affected. Only eight adults emerged this year under normal conditions in our

cages, but we had no evidence that any eggs were laid. The remaining insects either entered the soil to pupate or remained in the wheat heads. Apparently fully 50 per cent. doing the latter.

EIGHT-SPOTTED FORESTER (*Alypia octomaculata*).

Near Toronto the larvæ of this moth were very numerous on grape foliage.

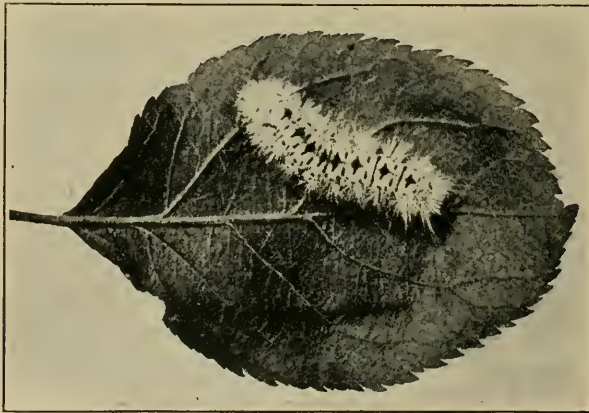
Halisidota tessellaris was unusually abundant this autumn and fed on numerous plants.

Halisidota caryæ attacked in considerable numbers apple leaves in the counties of Elgin, Oxford and Middlesex.

Halisidota harrisii destroyed much of the foliage on sycamore trees in parts of the Niagara district.

Diacrisia virginica was a great pest in gardens in many parts of the Province and attacked numerous flowering and other plants.

Datana integerrima defoliated walnuts in Essex and Kent.



The larva of the Hickory Tussock-Moth (*Halisidota caryæ*).

PROF. LOCHHEAD: Is this Blackberry Leaf-Miner a distinct species from the *rubi*?

PROF. CAESAR: By looking at the two species *rubi* and *bethunei* you would say that they were exactly the same, but Dr. MacGillivray has found a few differences. Both species are black, about $\frac{1}{4}$ inch long, and the body is quite black and the legs white, so that it is easy to recognize it as one of the two species. A full description is given in MacGillivray's Tenthredinoidea.

MR. GIBSON: Did you find both species during the work?

PROF. CAESAR: No. Only the one species.

MR. GIBSON: Did you find this pest all through the Niagara district?

PROF. CAESAR: Yes. There is a species this side of Toronto which has also been found almost as far as Port Hope. I do not know whether it is the same.

MR. SWAINE: What was the strength of the spray used?

PROF. CAESAR: The same strength as for orchard sprays, $2\frac{1}{2}$ lbs. to 40 gallons of water.

MR. SWAINE: We have tried kerosene emulsion sprays, just ordinary summer strength, on the leaf surface. I have killed them in strings with kerosene emulsion and also with Black Leaf 40, strong.

PROF. CAESAR: In the case of Black Leaf 40 I tried it decidedly strong, and what is more, I put the insects all together in a tight-fitting box so that the fumes could not evaporate easily, and brought them home packed very closely. The fumes had no effect at the end of two or three hours, and they were strong enough to have acted in a few minutes.

DR. O'KANE: We did some work this summer along the same lines of contact sprays for leaf-miners, chiefly the Apple Leaf-miner. This work was done on quite a large scale, an assistant starting in spring and remaining all summer on the work of penetration of contact insecticides. We worked the previous winter in the laboratory, shaping our results as far as possible. Of course apple is not the same as blackberry, but I may tell you our results. We used a great many different kinds of material including Black Leaf 40, up to 1-50; kerosene emulsion up to 25 per cent.; Black Leaf 40 with soap; lime sulphur at various strengths up to that which burned the tissue. We also used chemical reagents. We tried these through two generations of the Leaf-miner, the first spray when the Miner just hatched, the second when it was $\frac{1}{4}$ in. long, and the third when it was full grown. We made no penetration whatever into the mines with any substance, except through advantageous openings. If the Miner happened to be next to the mine where there was a good puncture, it got killed; if it was in the middle of the mine it did not get killed. If it was at the far end of the mine it would not be harmed in the least unless the application was sufficiently strong absolutely to destroy the leaf itself, when, of course, the miner was killed too. Pupation would go ahead as usual. As I say, if there happened to be an opening or puncture the material would penetrate, but if there was no such puncture the Miner had a perfectly satisfactory and efficient shelter. I am not certain with regard to elm leaves, but this prevails in the case of apple leaves.

PROF. CAESAR: May I ask a question and suggest an answer? I want a whole lot of information on how to control slugs.

THE PRESIDENT: This has been a most serious problem with nearly everyone on account of the wet season.

MR. GIBSON: At Ottawa this year we have been using air slaked lime.

PROF. CAESAR: Have you tried hydrated lime?

MR. GIBSON: No; only ordinary lime.

PROF. CAESAR: I found last week or the week before when making some further experiments with hydrated lime that at this time of the year it will kill slugs, but whether it would kill them earlier in the season I do not know. I do not know whether it would have any injurious effect on the foliage, say of beans. Lime sulphur if applied very strong will kill slugs, but it has to be too strong and will injure foliage. Hydrated lime when it comes in contact with a liquid forms a pasty substance. I should like to know if anyone else can suggest any other remedy.

DR. CORCORAN: Last season in the garden everything was eaten up by slugs around Notre Dame de Grace. Almost all the lettuce and cucumber patches were spoilt, and even pumpkins were eaten. We would find a pumpkin with a good-sized hole eaten in it by slugs. We tried hand-picking, but that was the only remedy we tried. How is the lime applied?

PROF. CAESAR: You can apply the lime in the evening when the slugs are at work. They work on top of the leaves and by dusting you can get the lime in contact with them. I think this is better than applying it in liquid form, and would have a more lasting effect.

MR. BAKER: When was it applied?

PROF. CAESAR: We got the best results by applying it in the evening just before the slugs come out to feed.

MR. GIBSON: We tried this remedy in connection with beans. I would recommend dusting freshly slaked lime every evening before the slugs come out, and when they eat the lime it kills them. If I remember correctly, we had very little trouble afterwards.

PROF. CAESAR: The slugs do not seem to be killed with Paris green. Mr. Baker tried, and it killed so slowly that it was not looked upon as a satisfactory method.

PROF. BRITTAIN: Slugs did not appear with us this year to any extent. We were going to make some extensive experiments this year, but there were no slugs.

PROF. LOCHHEAD: Has anyone ever tried poison bait with any success?

PROF. CAESAR: No success.

PROF. LOCHHEAD: The old English remedy of course is slaked lime. Whether it is effective all the time or not I do not know.

PROF. CAESAR: Tobacco extract does not have much effect upon slugs, but millipedes are usually poisoned by it.

THE APPLE AND THORN SKELETONIZER (*HEMEROPHILA PARIANA* CLERCK).

E. P. FELT, STATE ENTOMOLOGIST OF NEW YORK.

A small European moth which we have termed the apple and thorn skeletonizer has become well established in Westchester and Rockland counties, the centre of the infestation being near Irvington and Nyack, respectively. This insect is classed as one of minor importance in Europe though this is not necessarily to be the case in America. Some of our most destructive insects are of relatively slight importance in their native country. Owing to the fact that the caterpillars feed upon the upper surface of the leaves, it is easy to apply a poison where it will do the most good. It should not be difficult to keep this pest in control until its status can be determined or natural enemies have an opportunity to assert themselves and prevent widespread and material damage. This insect is already sufficiently numerous near the centre of the infested area to defoliate entire orchards and conditions favor a continuation of the spread with its accompanying serious injury unless there is early, thorough and general spraying in the infested area next summer.

RECOGNITION CHARACTERISTICS. The work of this newly established pest is fairly characteristic. It skeletonizes the leaves in much the same way as the well-known canker-worms, except that these latter more usually devour all the vital tissues of nearly every leaf, whereas this newly introduced caterpillar generally confines its attack to portions of many leaves, feeding near the centre under a slight web and extending upward and outward to include most of the tip of the leaf and frequently turning and webbing down margins of leaves about half an inch wide. Areas on each side of the basal part of the leaf are often untouched. There is no webbing together and inclosing leaves in masses so characteristic of

the native fall web-worm and also seen to a less extent with the brown-tail moth caterpillar. The cause of this mischief is an active, yellowish, black-spotted caterpillar about half an inch long.

DESCRIPTION. The moth is an obscure grayish brown or dark brown, sometimes purplish tinged, insect with a wing spread of a little less than half an inch. There is in well marked specimens near the base of the fore wing a rather broad, broken, angulate dark band near the basal third and a less distinct and more regular but somewhat broken dark band near the distal fifth, an area between this and the basal third being a variable grayish. The fringes of both the fore and hind wings are a rich purplish brown.

PUPA. Length about $\frac{1}{4}$ inch, moderately stout and dark bronzy yellow, variably marked with fuscous, especially on the posterior abdominal segments. The head is dark brown with a few fine, moderately long hairs. Antennal cases slender, the variably yellow-mottled wing cases extending to the sixth abdominal segment, the leg cases reaching just a little beyond. The mouth-parts and most of the median ventral area between the antennal cases yellowish. The dorsum of the thorax dark bronzy yellow. Scutellum fuscous yellowish and with a very fine short pubescence. Dorsum of the abdominal segments moderately smooth, shiny, the segments when flexed ventrally showing along the anterior margin series of minute closely set teeth. Terminal segment yellowish.

COCOON. The cocoon is spun upon the upper surface of the leaf and consists of an elongate oval mass of thick white webbing about $\frac{5}{8}$ of an inch long and $\frac{1}{4}$ of an inch wide. It is frequently near the midrib and covers the true cocoon which is faintly seen beneath. The pupa wriggles out partly from under the webbing before the moth escapes, the pupal shell projecting as in the Sesiids.

LARVA. The caterpillars are quite variable in appearance. The smallest observed on the leaves were about $\frac{1}{8}$ in. long, mostly pale greenish yellow. The head is a distinct amber shade with a rather conspicuous dark brown mass of closely placed ocelli. There is a narrow irregular dark brown line at the lateral dorsal angles of the head case, a small black fuscous spot ventrally and a pair of small subtriangular black spots sublaterally. Antennae moderately prominent, mostly yellowish brown, slightly fuscous apically. Thoracic and abdominal segments mostly a uniform yellowish, the true legs pale yellowish and having the second segment fuscous and the distal segment much more slender, tapering and with a distinct claw apically. There are well-developed cylindrical abdominal prolegs on the third, fourth, fifth, sixth and terminal abdominal segments, each leg when extended with a length approximately three times its diameter. The tubercles are a pale fuscous or fuscous, depending on the age of the caterpillar, each bearing one or two moderately long hairs.

Older larvæ with a length of about $\frac{3}{16}$ of an inch are decidedly darker though the general color is practically the same. The tubercles are much larger and in some specimens almost confluent so as to give the appearance of submedian black lines, though in reality they are simply series of closely set tubercles. The thoracic legs have a shade of fuscous on the apical portion of the basal segment, the second segment is black and the third practically as in the earlier stage.

Full-grown caterpillars have a length of nearly half an inch and present practically the same characteristics as given above, there being some darker specimens with rather larger black tubercles and lighter ones with somewhat smaller tubercles.

DISTRIBUTION. This insect is probably widely distributed, since it has been recorded from England, France, Germany, the Balkan Peninsula, Bithynia and

west in Asia to Turkestan. This range suggests that the species can maintain itself in the northern United States and southern Canada.

It has become established in New York State in an area determined in co-operation with Dr. G. G. Atwood of the State Department of Agriculture as centering approximately upon Irvington and extending east to White Plains, south to Harrison and north to Croton. It also occurs on the west bank of the Hudson River, ranging for a mile or two north and south of Nyack and west to West Nyack.

LIFE HISTORY. It has not been possible to work out the complete life history of this insect under American conditions though there is no reason for thinking that the moth has departed materially from its habits as recorded in Europe. Mr. J. W. Tutt states that adults occur in September and October on flowers of Compositæ, while William West records capturing specimens among golden-rod.

The adults and probably pupæ hibernate, the former in any shelter such as thatch and the latter in cocoons attached to the leaves. The over-wintered moths or those issuing from pupæ deposit eggs probably when the leaves are partly developed, since Meyrick records larvæ as occurring in England during May, June and August, indicating at least two and probably three generations annually. There is considerable variation in development toward the end of the season, at least under American conditions. Full-grown and very small larvæ were found simultaneously at Irvington in September and even in early October. A few larvæ may feed to the latter part of the month. Larval growth is probably completed within a month or six weeks. The type of injury suggests that the moths deposit a few eggs near the base of each leaf and when numerous may oviposit on almost every leaf. One of the striking features of an infestation is the general distribution of injury throughout the tree.

The feeding on each leaf is, practically speaking, independent of that upon other leaves. There is no inclosing and webbing together as with the fall web-worm. The caterpillars feed upon the upper surface, skeletonizing the leaves more or less completely and working from the lower part of the midrib upward and outward so that unless the infestation is unusually severe areas on each side of the basal parts of the leaves frequently remain untouched. This type of injury is characteristic of moderately infested orchards. Those badly infested may have practically every leaf on all the trees completely skeletonized.

FOOD PLANTS. This insect has shown a marked preference for apple though it has also been recorded as feeding upon pear, hawthorn, mountain ash, birch and possibly willow.

NATURAL ENEMIES. Meyrick's statement to the effect that this skeletonizer is local in England indicates moderately efficient enemies and this is borne out by its classification as a pest of minor importance by continental writers and the recording by Reh of a number of parasites. It is presumable that some of its native enemies became established with their host and if this is not the case, the chances favor some of our native parasites becoming accustomed to this new food supply and assisting materially in reducing its abundance. A few parasites (*Diocetes obliteratus* Cresson) kindly determined through the courtesy of Dr. Howard, have already been reared from materials received from Westchester County.

CONTROL MEASURES. There is no question but that thorough and timely spraying with a poison such as arsenate of lead will destroy these caterpillars and, owing to their feeding almost entirely upon the upper surface of the leaves,

a general application of these measures in infested areas to all trees upon which the pest can subsist would mean its early control and practical elimination so far as material damage is concerned. Residents of the infested section are most strongly advised to watch for the development of the insect next season and to spray all trees showing signs of its work, since it is very important to control it so far as possible, because experience has demonstrated that it is easier to handle an outbreak in its incipency than to begin after serious losses have occurred.

SOME NOTODONTIAN LARVÆ.

REV. DR. J. A. CORCORAN, LOYOLA COLLEGE, MONTREAL.

The sudden appearance of temporary structures and protective colours and markings of caterpillars are usually attributed to the action of stimuli from without. Whether this deduction will remain unshaken by the facts that the observers of the future may bring to light, or will be discarded, does not concern us. It is sufficient that this theory gives the entomologists of the present day a spur to observe more closely the changes which various larvæ undergo before reaching the stage of pupation, and makes of their observations the solution of a definite problem instead of the compilation of a catalogue of uncorrelated changes. For the external stimuli which have acted in the past must be more or less active to-day, otherwise the structures they have produced will become useless and vestigial, since God in His goodness does not allow a creature to retain a structure, that is a functioning structure, which has become really hurtful to its possessor.

In an endeavour to find a cause for the abrupt appearance of certain colours and temporary armament in the Notodontian larvæ, I had under close observation last summer some colonies of *Schizura concinna* and *Heterocampa guttivitta*. My observations of the habits of these larvæ were too restricted, and my microscopic examination of the sections of the parts before and after the changes were too superficial, to be of value in arriving at a definite conclusion, but I give them in the hope that some of our members may find them of interest and later when the win-the-war problems no longer call for the entomologist's undivided attention, they may record their own studies on the larvæ of these same species.

When first seen the larvæ of *S. concinna* were about 3 mm. in length and arranged themselves in serried ranks on the under surface of the leaves of an apple tree. I divided the colony into two, leaving twenty larvæ undisturbed and placing the rest on a nearby branch of the same tree, so that I might have material for dissection while not depopulating my observation colony. The moth had deposited her eggs on the end leaves of a branch most conveniently placed where they could be seen at all hours of the day.

During the first stage the larvæ fed on the epidermis and tissue of the under side without puncturing the leaf, and hence could not be seen from above. Their yellowish heads which were smooth and unarmed, and their yellowish-green bodies, tinted reddish along the sides, harmonized so well with the surface on which they fed that it was difficult to distinguish them. Neither insects nor birds seemed to spy them, although a dozen two-winged flies passed within a few feet of them, and an aphid lion was seen running about on the lower part of same branch on which the colony fed. The third day after discovery all the members of both colonies moulted and passed to the second stage.

The head was now reddish-black and bore two blunt knobs on top. A section of a larva made the day before the moult shows no evident thickening of the epidermis and underlying tissue. As the insects grew, red lines along the sides of the thorax, a pair of yellow spots and five tubercles of the same colour near the anal end of the uplifted abdomen could be made out. By the time the larvæ were 8 mm. long they were eating both surfaces of the leaves and when feeding arranged themselves along the cut edges. Hairy warts on the head, and dorsal and lateral spines on the body gave the insects, which could now be seen from above, a rather unattractive look. When not feeding the larvæ placed themselves in rows on the stem and bared veins of the leaf.

The numerous two-winged flies which were seen on the leaves of neighbouring apple trees, did not seem to notice the colonies. One larva dissappeared at this stage—perhaps, to the nest of one of the wasps which were decorating the cornice of a near-by room.

After the second moult the head became black again and remained so until the final moult. The various tubercles and spines were more marked and the insects, which were at this time denuding the branch, eating even the veins and midrib of the leaves, could now be seen at a distance of six feet. Numerous insect-eating birds hopped about on the near-by trees and some stopped to examine the colonies. A young song-sparrow disposed of one larva, but the other six which dissappeared during the third and fourth stages succumbed to the heavy rains which were of frequent occurrence last August.

At the final moult the larvæ developed the coral-red head and large abdominal hump of the same colour which gives them the common name of the Red-Humped Apple Worm. During the last days of the fourth stage I took a number of larvæ from the control colony that I might make sections of them and follow the changes which immediately precede the final moult, but my time has been so taken up that I have not yet examined them.

During the last stage the larvæ increased in size from 20 mm. at the time of the fourth moult to 30 mm., which they attained before descending the tree to pupate. Although they were conspicuous objects which could easily be made out at some distance, the birds did not molest them.

My colony of *Heterocampa* larvæ were hatched from a few eggs that were laid by a female caught at night. By means of a smear of gum I attached the eggs to the under surface of a red maple leaf. On the eighth day the larvæ emerged and began feeding on the superficial tissues of the leaf. They were then about 5 mm. long and under a glass showed nine pairs of comparatively enormous horns. The first pair on the prothoracic segment were four-tined like the antlers of a deer, the remaining eight pairs were single-pronged. Section of the insect shows the horns to be pure dermal structures devoid of muscle. On the fourth day the larvæ moulted and lost all trace of the horns except a pair of short stumps on the prothoracic segment.

During the first stage no enemies seem to have discovered these larvæ, but on the third day of the second stage while I was absent in the country they all dissappeared. Some predaceous insect probably got them, for they were well hidden from the birds.

The individual larvæ of these species experience no change of surroundings which might call for an abrupt change in colour or armament. They pass their whole larval existence on the tree upon which the parent moth deposits the eggs, indeed, they do not leave the branch, unless compelled by lack of food, until they all, in regimental order, descend the tree to pass the winter as pupæ beneath the dry

leaves or in the ground. Nor do the horns of *H. guttivitta* and the hump of *S. concinna* show signs of becoming vestigial, for both are well nourished and the latter bears moveable spines.

Predaceous insects are the usual enemies of small caterpillars, and birds of full grown larvæ. To escape the former the horns of *Heterocampa* are well adapted, but why should they suddenly disappear at the first moult? The marked increase in size of *S. concinna* during the last larval stage may call for more conspicuous warning colour that the passing bird may more easily see that the insect is not good food. Whatever be the reasons, the entomologist who observes the development of Notodontian larvæ must be impressed by the protection God gives these strange creatures against the enemies who prey upon them.

EVENING SESSION.

The evening meeting was opened at 8 o'clock with an address of welcome by Dr. Harrison, Principal of Macdonald College.

Owing to the fact that he would be unable to remain for the whole of the evening session Dr. Hewitt took this opportunity of introducing the symposium in "Canadian Entomologists and the War," the discussion of which was to take place at the smoker later in the evening.

The public lecture on "The Problem of Mosquito Control" was then delivered by Dr. T. J. Headlee, State Entomologist, New Brunswick, N.J.

THE PROBLEM OF MOSQUITO CONTROL.

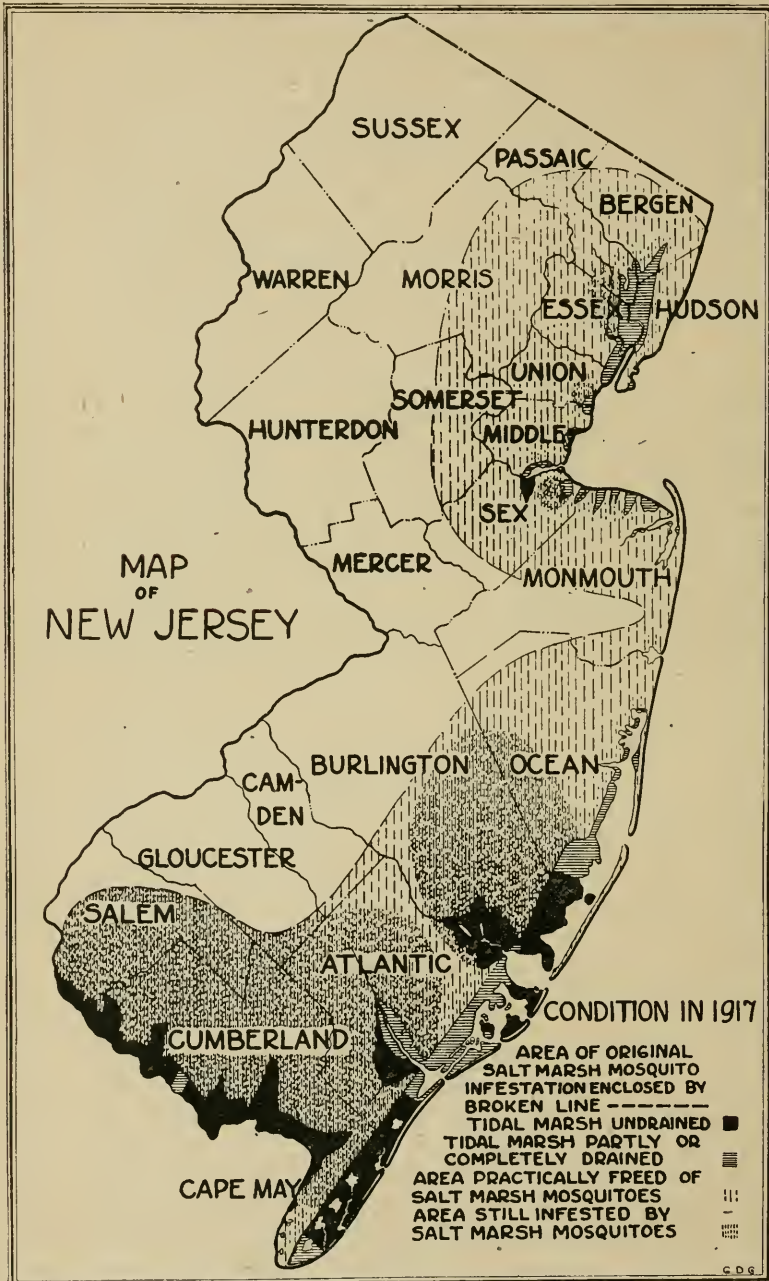
THOMAS J. HEADLEE, PH.D., ENTOMOLOGIST OF THE NEW JERSEY AGRICULTURAL EXPERIMENT STATIONS AND STATE ENTOMOLOGIST.

INTRODUCTION.

While interest in anti-mosquito work is now found in nearly all parts of the world, it is engaged in most cases with very limited areas of country. No doubt this is due to the fact that the source of interest is usually the hope of eliminating insect-borne diseases from limited areas.

Anti-mosquito work in New Jersey does not have its roots in the desire to destroy diseases. Malaria, which with us is the only mosquito-borne disease, occurs in only a few very limited areas and forms in each case a strictly local problem. Interest in mosquito control in New Jersey arises from the desire to make the state entirely comfortable and desirable for its citizens.

The north-eastern end of the state is rapidly being transformed from low-priced farm land into urban property and the mosquito pest, such as would come from the unprotected salt marsh, would seriously interfere with and delay that process. In the counties of Hudson, Bergen, Essex, Union and Middlesex, each of which have some thousands of acres of salt marsh within its borders, in the ten year period from 1900 to 1910, 60,000 acres of farm land were transformed into urban property, and the growth during the last seven years has not been less rapid. Within range of these salt marshes lies the County of Passaic, which is really a member of this group, but which has no salt marsh.



County map of New Jersey, showing locations of salt marshes, area of upland formerly covered by flights of salt marsh mosquitoes, portion of the salt marsh which has been more or less completely drained, and area of upland at present covered during the mosquito season with salt marsh broods.

About one and one-half millions of people live within the borders of these six counties.

That part of the southern end of New Jersey included in the counties of Ocean, Burlington, Atlantic, Cape May, and Cumberland have more than 100 miles of fine sand beach nearly all of which might be developed into delightful seaside communities, and 1,700,000 acres of farmland of which about one million are totally undeveloped.

A large part of this territory is covered at times during the summer with dense broods of salt marsh mosquitoes.

Seaside communities build slowly and undeveloped lands are tardily improved under such conditions.

There are about 296,000 acres of salt marsh in the State of New Jersey, of which probably 200,000 are potentially good salt hay land. The drainage necessary to control the salt marsh mosquito seems after its effect is felt to increase the hay yield from about .7 of a ton to 2.6 tons per acre.

While New Jersey was one of the first states to become interested in the problem of mosquito control from the standpoint of human comfort and prosperity, she is certain not to be the last, because there are about 6,400,000 acres of tidal marsh in the United States alone, and the mosquito-borne disease of malaria is now recognized as the great, but by no means immovable, bar to the development of immense areas in our Southern states.

In view of the apparent certainty of a rapidly increasing interest in the elimination of all species of mosquitoes as a means of contributing to human comfort and prosperity, the present paper is an outline of procedure that may be followed in attacking the problem in any specified locality.

To the man not familiar with the nature of insects, anti-mosquito work means mosquito extermination. This misconception leads the professional worker into much trouble because the people whom he is trying to serve demand year by year greater and greater freedom and cannot understand why at times they are troubled.

At the present stage of anti-mosquito work only the problem of control can be considered and that of extermination must be relegated entirely to the future. The object of mosquito control is to reduce the fauna to a point where diseases carried by it do not occur and the householder is unaware of its existence.

The problem of bringing the mosquitoes of any badly infested locality under control involves: (1) A careful and thorough analysis of the mosquito fauna both in larval and adult form for at least one entire season; two or three would be more conclusive; (2) a careful study of the reasonably permanent breeding places from which the adults come, followed by the preparation of a detailed plan showing the methods and the cost of eliminating them; (3) the obtaining of funds with which to do the work; (4) the execution of the plans and the completion of the initial work; (5) maintenance, temporary elimination, and improvement; (6) giving the work a permanent character; (7) evaluation of the results of mosquito control.

ANALYSIS OF THE MOSQUITO FAUNA.

In planning for future anti-mosquito work the mosquito survey usually means an examination of the territory for places which past experience has indicated as likely to breed and for such places as show breeding at the time of inspection. Unfortunately for this simple procedure, experience has shown that the area may be far more severely infested by mosquitoes which breed outside its limits than by the species that are produced locally. This is well illustrated in New Jersey by all

communities within reach of flights from the salt marshes (see map). Before the flight of certain salt marsh species was recognized many local efforts were discredited by the influx of these far-flying species. It is, therefore, necessary to find some way of determining not only the species that are bred within the protected area, but also the species which breeding entirely outside may invade and annul the effect of local work.

Without doubt the most accurate way of determining these points is that type of a seasonal study of mosquitoes on the wing which will enable the operator to map the mosquito fauna at short intervals throughout one or more summer seasons. It is true that a person having long and wide experience with mosquito control can make a rather accurate guess at the nature of the mosquito trouble in a specified area by a study of possible mosquito breeding places within and without of the said area. His forecast is, however, merely a shrewd guess and may go very wide of the mark.

In the collection of data necessary to the preparation of the mosquito distribution maps a limited number of stations must be selected in such a fashion that some definite idea of the conditions throughout the infested area may be obtained. In order that the collection results may be comparable the places selected must be essentially similar, especially as regards cover and light or the difference between them must be evaluated, which is always a difficult matter. The portion of the body from which the collections are made must be the same, and the collector whose body does not attract mosquitoes must be eliminated. Collections must be made at a time of the day when as nearly all species are active as possible. It may be necessary to determine this time by running a set of trial collections covering all hours of the day and night. For the purpose of comparing one collection with another the temperature, moisture and wind conditions during the period when each area-wide collection is made must be recorded and eventually more or less accurately evaluated.

The mosquitoes must be caught and killed without crushing or rubbing them in order that accurate identification of them may be made. The results of each general collection, stated as so many mosquitoes of each species per selected unit of time should be set down on a topographic map of the area and the nature of the weather conditions noted on the same sheet.

If properly prepared this map will afford a picture of mosquito conditions at the time when the collection was made and if properly interpreted will show whether the collection methods should be modified and will indicate what changes should be made.

If the number of specimens of each species caught appears to be perfectly irregular in distribution the results may be attributed to emergence from local breeding. If on the other hand, there is evident an area in which certain species appear in greatly increased numbers which grow larger from some point in the area to its boundaries, it is safe to assume that an invasion of mosquitoes breeding outside the protected area is occurring. If there should appear specimens of a species, the known habits of which would seem to preclude breeding within the area, invasion of that species would be clearly indicated.

Whenever the charts show the presence of invasions, they must be traced at once to the source from which they come. The method employed in these tracings will depend upon the species concerned. When dealing with the salt marsh or the fresh water swamp mosquito, the work may be done during daylight by means of an automobile, but when dealing with the house mosquito, the collections must be made during a period beginning about dusk and ending less than one hour later. In

dealing with other less well known species, it may be necessary to determine the time of day when the study can be successfully made. In any case the kind of weather, the time of day and the type of cover under which the species being studied may be caught must be determined.

Tracing invasions of salt marsh species are done very quickly with an automobile by starting in uninfested territory close to the infested area and collecting at regular distances—say, 0.5 of a mile to 2 miles—until the mosquito zone has been traversed and uninfested country found on the other side; this collection to be followed by a similar one pursued in a line at right angles to the first.

Two assumptions are, of course, necessary to the success of this plan, one of which is that the mosquitoes may be collected in daylight and the other that the direction of greatest density indicates the source of the brood. The collections are made in as nearly similar places as possible, especially as regards the character of the growth, and the relative number present is determined by using two small cyanide tubes and catching specimens as rapidly as possible for a definite period of time, then reckoning the catch on the basis of so many per minute.

In actual practice whenever the study began on the first appearance of the brood, these assumptions were found to be correct and many broods have in this manner been traced to their places of origin. At least three important results followed the discovery and use of this method, the first was the finding of immense breeding areas in the Hackensack Valley salt marsh in sections hitherto thought to be free of breeding, the second was the uncovering of inefficiency in the control of salt-marsh breeding on certain especially dangerous areas, and the third a determined and apparently successful effort to eliminate the breeding places thus discovered.

The methods found to be successful for the fresh water swamp mosquito migrations are essentially the same.

It became necessary to find the source of a brood of the house mosquito (*C. pipiens*) which in spite of effort to control local breeding continued to infest North Elizabeth and Union County. It was quickly found that no progress could be made by day collections and that a difference in the hour when the collections were made gave such a difference in the number caught that determination of density by serial collections covering several hours was impracticable. Accordingly, a sufficiently large number of inspectors were furnished by Union and Essex Counties to cover a line extending through North Elizabeth to and through South Newark to the sewage-charged salt marshes, each man collecting for fifteen minutes at three stations, one-quarter of a mile apart from each other, between 8.00 p.m. and 9 p.m. The following evening in the same manner a line from the marshes running at right angles to the first was collected. In this instance the weather of the two evenings was sufficiently similar to render the results comparable, but generally it would be better to have enough inspectors to collect both lines at the same time.

A careful study of the collections showed a zone of house mosquitoes extending from North Elizabeth to the Ebling section of the Essex County salt marsh, a distance of at least 2.5 miles, with practically steadily increasing density as the marsh edge was approached.

Examinations of the marsh, which was heavily charged with sewage, showed enormous numbers of *C. salinarius* and *C. pipiens* with small numbers of *A. sollicitans* and *A. cantator* in larval and pupal stages. The question has been raised as whether supposed house mosquitoes were not really *salinarius*. Undoubtedly both *C. pipiens* and *C. salinarius* were component portions of the zone,

but the smaller portion seemed to consist of the smaller, darker, lankier form which was thought to be the latter. It seemed only fair to conclude that while *C. salinarius* played a part in forming this mosquito zone, *C. pipiens* was clearly shown in this case to migrate a distance of 2.5 miles from the place of breeding.

At the same time that an analysis of the mosquitoes on the wing is being made a careful survey of the mosquito breeding places should go forward. A seasonal map of the more or less permanent breeding places should be made.

PREPARING PLANS FOR THE ELIMINATION OF BREEDING PLACES.

Having determined the nature of the mosquito fauna and its source, the next step is the preparation of plans for the elimination of the breeding places. In most cases this involves the solution of rather simple engineering problems for most of the work will be of a drainage character. Plans for the adequate treatment of each place should be prepared. The preparation of this phase of the report may involve the consideration of breeding places, either fresh or salt, existing entirely outside of the protected area.

The actual working out of such a plan is well illustrated in the effort at Princeton, New Jersey. Here each breeding place of a reasonably permanent character has been charted. The type of written matter accompanying this chart gives a description of each place or group of places, describes the methods that should be used in eliminating the breeding, and presents an estimate of the cost of the operation. A simple description of one of the breeding places runs about as follows: "District Number V is an old basin once a part of the D. and R. canal system but long since abandoned. The stagnant water is sheltered from the winds by surrounding trees and the banks are shallow and overgrown with vegetation. It is 130 x 300 feet and has some surface drainage into Stony Brook. Its bottom has at certain points as low an elevation as 52.6 feet above sea level, which shows that the drainage will have to be supplemented by a fill.

"The Committee recommends that an open ditch be cut from this basin to the nearest point of Stony Brook at a cost of from \$15 to \$20, and that the earth thus removed be used to help fill the remainder of the basin to a level of 53.1 feet or more. This will require 2,655 cu. yards. Part of the earth may be taken from the banks and higher levels in the vicinity, but still more must be obtained elsewhere. The cost of moving the soil and making the fill should be about \$1,250. About \$100 should be allotted to clearing off the weeds and bushes that will obstruct the ditching and filling operations."

In this way a comprehensive plan of operations and a fairly accurate estimate of the cost of the initial work necessary for mosquito control in a specified locality can be prepared.

OBTAINING FUNDS.

After reasonably accurate plans and estimates are in hand the problem of obtaining funds must be solved. It is safe to assume that if the work has been carried to the stage of completed plans and estimates some one person or some group of persons possessed of a considerable amount of energy and initiative is deeply interested in the success of the movement. If the mover coincides with the person or group who must furnish the means, this problem is extremely simple, but, if on the other hand, the funds must come from a group of large size or from the general public its solution becomes more difficult.

Two ways of getting funds are then open. The person or persons interested may go about among the landowners and residents of the afflicted districts and

attempt to persuade them that the work is sufficiently important to merit their financial support. The person or persons interested may, through the medium of lectures, newspaper and magazine articles, educate the public to a point where the desired work may be paid for from the public treasury. In any case, the danger and discomfort of present conditions must be constantly contrasted with the safety and comfort of the time when the desired work has been completed.

EXECUTION OF THE PLANS.

When the moneys have been secured the organization necessary to carry out the initial work must be formed. Perhaps the simplest form of organization is the employment of a competent engineer who may be held responsible for the proper prosecution of the work by contractors. Certainly, such a method will not leave the active agent burdened with a supply of tools and useless machinery.

MAINTENANCE, TEMPORARY ELIMINATION, AND IMPROVEMENT.

When initial work has been completed it must be maintained. Breeding, which occurs in the thousands of shallow pools of various sorts which after heavy rains are found in depressions of the ground and in old receptacles and in places of permanent character such as sewer basins, cesspools, cisterns, etc., must be destroyed before the adult mosquitoes can be produced.

As the work proceeds, many additions to the drainage systems already installed or entirely new plans for districts that may have been overlooked will seem advisable. Provision should be made to meet such conditions.

When trying to meet the problems of maintenance, temporary elimination, and improvement of anti-mosquito work over a large area, some methods of testing the value of such work must be devised. Many men will be employed and more or less efficiently supervised. Data on effectiveness as measured in terms of mosquitoes on the wing must be had. The practice of the regular collections of adults as described earlier in this paper will afford the needed facts. After a certain amount of experience the person in charge of collections will be able to say, under given conditions of temperature, moisture and wind, just how many mosquitoes per selected unit of time mean that the householder living near the point of collection will be troubled. Fortunately, he can usually discover the dangerous increase in time to find the unchecked breeding and head off the trouble.

The local director of the anti-mosquito work is able, by examining his map of collections, to see at once where the dangerous increases are, and by making a thorough re-inspection at these points, to discover the inefficiency of his maintenance and temporary elimination, and to determine the nature of improvement needed. Of course his map may also show an invasion. It will then become necessary to trace it to its source and take measures to correct the conditions which have given rise to it.

GIVING THE ANTI-MOSQUITO WORK A PERMANENT CHARACTER.

After the work of mosquito control has been started and carried forward for several seasons, the problem of insuring the continuance of necessary maintenance and improvement must be solved. The first year of successful work will ordinarily bring about such a gratifying reduction in mosquito trouble, or disease carried by mosquitoes, or both, that the work will stand very high in the opinion of the people

within the protected districts. This public approval will continue for two or three or even more years, and the occasional appearance of a troublesome number will be discounted.

But as time passes the remembrance of the suffering experienced before any work was done will fade, and the appearance of the occasional outbreaks will be charged to inefficient work on the part of the mosquito control organization, and the appropriations necessary for the support of the work may be discontinued. The public will demand that freedom each year become noticeably greater. Of course, this natural change of public opinion may be delayed by educational work in the course of which the nature of the problem is explained. But sooner or later the public will demand that even this occasional trouble, this apparently irreducible minimum, be eliminated.

Without doubt methods not now in use must be developed if this demand is met. A more fundamental study of the mosquito's natural history must be made in the hope that a clue to the accomplishment of further reductions may be found. The chemotactic responses of this insect are practically unknown. The development of larvicidal agents has only begun. There is much room for that type of research which will develop new and better methods of getting at the problem of mosquito control.

EVALUATION OF THE RESULTS OF MOSQUITO CONTROL.

The last phase of the problem of mosquito control is the evaluation of the results of anti-mosquito work. In dealing with the species which disseminate well known and definitely diagnosed diseases this phase seems to offer little difficulty. Before the work is done a survey of the number of well authenticated cases of disease should be made. Each year after the work the survey is repeated and the conditions before and after compared. This is well illustrated in the work at Princeton, where in 1914 before the work of control began there were 127 cases of malaria, while in 1915, after the work had made a good start, there were 65 cases, and in 1916, after the large part of the work had been done, there were 8 cases. Still more striking results were presented by Dr. Carter last winter. At Roanoke Rapids, North Carolina, in several mill villages of over 4,000 total population, anti-mosquito work reduced the physicians' calls from 50 per day to $2\frac{1}{2}$ per day the first year, and to one call for each three days the second. At Wilson, Virginia, in 1915, every house visited by Dr. Carter had at least one inmate sick with malaria. The five deaths which occurred in August may be taken to indicate that there were about 500 cases in the place. In the summer season following efficient anti-mosquito work there was only one case.

Thus far the only ways of measuring the value of anti-mosquito work when only the comfort of the people is served, are public approval as voiced by the newspapers and governing bodies, and the advancement in valuation of property for taxing purposes.

The first usually appears in a form similar to the following taken from the Newark *Evening Star* on August 16, 1912:

"That the work of mosquito extermination in Essex County this season has been well done, nobody can doubt or deny. The pest was not entirely destroyed, but that was not expected. The mosquito extermination Act has been amply justified by results and its repeal by the legislature at the demand of some parsimonious county that is willing to suffer the pest rather than pay the small price for getting rid of it is impossible."

Or in a form similar to the following communication from the *Paterson Press-Guardian*.

"To the Editor of the *Press-Guardian*: Sir,—Now that the Mosquito Commission has announced that its operations for this season are ended, it would seem to be a proper time to call attention to the great success of its operation. I have lived in Paterson more than forty years and in my recollection we have never had so much freedom from mosquitoes as during the past season, and this in spite of the fact that the conditions for breeding mosquitoes early this season were ideal. The result, I believe, can only in fairness be attributed to the mosquito extermination work.

"When this work was inaugurated a few years ago, many people were doubtful of the result and seemed to feel that money appropriated for the mosquito extermination work would be money wasted; but it seems to me that any unprejudiced person comparing conditions during the past summer with previous years must realize that the nuisance has been reduced to a minimum and that the money invested in this work has been well spent.

"Let us give due credit to David Young as well as to the members of the Commission and others engaged in the work who have given the matter time and study and hard work, and when the Commission applies for its next appropriation let it have the money without hesitation. Not only does this work promote the comfort of the residents of Paterson but, if continued, it must enhance real estate values, which have suffered in the past from the widespread and free advertising received by the 'Jersey Mosquito.'

"Paterson, Oct. 10, 1917."

While this sort of approval is necessary it is a rather poor yardstick by which to measure the value of permanent work.

Unfortunately increases in real estate values are dependent upon so many factors that one finds it extremely difficult to separate the effect of mosquito control from the operation of other factors. We can, however, say that the development when it is a matter of building up high-class residence districts will not occur where the country is infested by hordes of mosquitoes. A calculation prepared in 1912 shows that the taxable values of shore properties from Jersey City to Sea Bright had increased since mosquito work had begun at least 6½ millions, and that the increase ranged from about 15 per cent. in the manufacturing districts to 300 per cent. in some of the residence districts.

If we may assume that a reasonable freedom from the mosquito pest is prerequisite to large industrial development, and the writer believes that the assumption is in most cases susceptible of proof, an examination of the increase in taxable values on the Newark meadows, which were formerly as badly mosquito infested as any part of the State of New Jersey, will serve as an instance to show the development which anti-mosquito work has made possible.

The meadow comprises about 4,000 acres. Anti-mosquito work began many years ago, became intensive in 1912, and has continued until the present. The taxable value of those marshes and the tax from them are shown in the following table:

Year.	Taxable Value.	The Tax Increase.
1913.....	\$1,735,000	\$19,656
1914.....	2,192,000	22,064
1915.....	2,251,000	30,390
1916.....	3,750,000	64,155

In 1912 the tax was \$19,656 and in 1916 it was \$64,155, making an increase of \$44,499, or over 300 per cent. In 1912, 286 men were employed in factories on these meadows with a yearly wage of \$152,000. In 1916, 6,341 men were employed with a payroll of \$2,863,000.

In dealing with salt marshes, as a by-product of the drainage necessary for mosquito control, we find a decided increase in the annual yield of salt hay. The

undrained marsh yields an average of about .7 of a ton of coarse hay, which hardly repays the cost of cutting and marketing, while the drained marsh produces 2.6 tons of a much better grade, involving an increase of about \$15 an acre. It should, of course, be recognized that an average of about three years is required to realize the full benefit.

CONCLUSIONS.

Present methods of mosquito control are sufficiently effective to afford much relief from the mosquito pest by freeing protected communities to a very large extent from mosquito annoyance and mosquito-carried diseases. Such results can be obtained only when the matter is gone about in a careful systematic manner, involving a thorough study of the nature of the problem and the creation of an effective organization to carry out the work.

Mosquito control work, because of the large amount of temporary control involved, must become a permanent fixture.

With present methods of control the protected territory will at times be troubled by some mosquitoes, because the enormous increase in breeding surface, brought about by a prolonged rainy period, may be such as the organization cannot cope with.

More thorough or fundamental studies of the life economy of the economic species of mosquitoes are needed in order that still more effective methods of control may be found.

MR. GIBSON: May I ask whether you have used oil to any great extent on the marshy areas?

DR. HEADLEE: Oil is used extensively for temporary elimination in small temporary pools, basins, in the treatment of garbage dumps, and to some extent, although only a minor extent, on the salt marsh. It is considered a method of temporary elimination only, and its use is no more extensive than we can avoid. We use a good many thousand barrels of oil in a year, because there is much temporary work to be done, and I think if we take into consideration existing conditions there always will be temporary work to be done. There are always temporary pools under exceedingly rainy conditions, and these pools are breeding grounds for the mosquitoes. We have had the question raised frequently as to why we do not reduce the seed or eggs so that under these extra rainy conditions they could not produce so many insects. We have not got the eggs down far enough yet to notice much difference, although we have made a number of experiments.

PROF. CAESAR: What type of oil do you use now?

DR. HEADLEE: All kinds of fuel oil. Recently the Standard and other concerns have been making us an oil up to heat strength by putting in a good amount of crude kerosene. We need an oil with a large amount of spread in proportion to holding power, and we are continuously trying all kinds of oil, for until we test it out we do not know the character of it and whether or not it will suit our purpose. The number of fuel oils is tremendous, and the only way we can get the kind we want is to have samples submitted to us and test them for spread and for staying qualities. Some oils will stay for two weeks, and others for two days, some will spread out nicely by themselves, others will have to be sprayed on to make them spread at all. The whole question is a difficult one, and we have tried to get satisfaction from the standpoint of viscosity, but the oil people do not seem able to give us just what we are looking

for. In testing a sample of fuel oil we want one that will spread readily, will make a nice complete coating on the water, and will stay at least a week. But even at the best, oil is only a temporary measure.

A hearty vote of thanks, moved by PROF. CAESAR and seconded by PROF. LOCHHEAD, was extended to the speaker in appreciation of his lecture.

MR. A. F. WINN then delivered the President's Address on "The Bladder-scales of *Lycanida*."

After the evening session, a smoker was held in the Men's Residence, when an extensive discussion on "Canadian Entomologists and the War" took place. The discussion was taken part in by Prof. Lochhead, Mr. Winn, Dr. Headlee, Prof. Burgess, Prof. O'Kane, Prof. Caesar, Prof. Brittain, Mr. Gibson, Mr. Petch and others.

FRIDAY MORNING, 9 O'CLOCK.

After a short business meeting at which the officers for the ensuing year were elected, Prof. Caesar, the newly appointed President, took the chair and in a few words expressed his thanks and appreciation of the honor done him.

MR. WINN extended an invitation to members and visitors to visit the Lyman Entomological room at McGill University.

THE BLACK CHERRY APHIS.

WILLIAM A. ROSS, DOMINION ENTOMOLOGICAL LABORATORY, VINELAND STATION.

The experiments on which the following paper is based were carried on this past season at the Dominion Entomological Laboratory, Vineland Station, Ontario. The aphid was studied both in the insectary and in the orchard. In the insectary (a covered bench, situated out-of-doors) the plant lice were reared on small sweet cherry trees and *Lepidium* plants grown in flower pots.

As we have not had time to prepare technical descriptions of the various forms, only popular descriptions are included in this paper.

HISTORY.

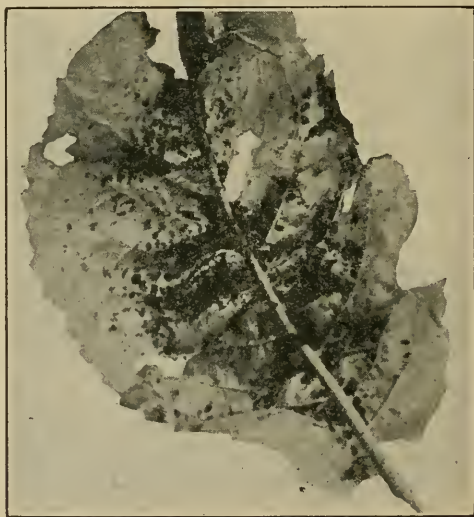
The black cherry aphid has long been known in Europe and North America as a pest of cherry trees. On this side of the Atlantic the species was first recorded in 1851 by Fitch (Cat. Homopt. N.Y. 65, 1851). The same author in a later publication (Rep. Ins. N.Y. 1, 125, 1855) describes the insect and gives an interesting account of its habits. He suggests that it was introduced into America with the tree which it infests. What is probably the first reference to *M. cerasi* in Canadian literature is contained in Fletcher's Report of the Entomologist, 1885. Mention is merely made of the occurrence of aphids on young cherry trees at Victoria V. I.—no name or description is given. In the Entomologist's Report for 1897, Dr. Fletcher gives the following interesting observations made by Mr. Martin Burrell, at that time of St. Catharines, Ont.:—

"The principal damage has been done by the Cherry Aphis (*Myzus cerasi* Fab.), whose attacks on the sweet cherry of this Peninsula (Niagara) were simply disastrous. I do not think I should be overshooting the mark if I said that half of the crop was ruined. I saw many cases where not only the foliage was covered but even the fruit, and especially the stalks, with lice."

HABITS AND DEPREDACTIONS.

The cherry aphis is primarily a pest of the sweet cherry. It occurs on, but so far as we are aware, is never destructive to, the sour cherry.*

The aphis feeds on the buds and tender foliage and it may even attack the blossoms and fruit, especially the stems. Infested leaves become tightly curled and when badly attacked turn brown and die. Fitch speaks of aphis-infested leaves "looking as though they had been scorched by fire." The fruit may also be seriously damaged. During the summer of 1915, there was an outbreak



Cherry Aphids on underside of sweet cherry leaf, natural size.

of cherry aphis in the Niagara district and in a Vineland orchard the fruit was so badly injured that most of it was left on the trees. The cherries were small, ripened irregularly and many of them were covered with honey-dew and the black honey-dew fungus.

MIGRATION OF *M. CERASI*.

A difference of opinion has existed among entomologists as to whether this species is migratory or not. Crosby (1) considers that the question is unsettled. Sanderson (2) and O'Kane (3) say that so far as known the cherry aphis has

*Since writing the above, Mr. P. J. Parrott, Geneva Agricultural Experiment Station, has kindly placed at my disposal the following note from Mr. H. W. Lasher, of Wolcott: "Replying to your inquiry *re* the black cherry aphids, I find that some years they do infest the sour cherry. They have attacked in my case, Montmorency, Morello, and Richmond trees. They do not take a block but trees scattered throughout an orchard. They destroy all the fruit, it falling off when the size of a pea."

only one food plant. Gillette (4) states definitely that *M. cerasi* lacks the alternating food habit. On the other hand, Quaintance and Baker (5) claim that it is migratory. How are we to account for these apparently conflicting statements? Is it possible that the species is partially monophagous and partially migratory? Our observations and experiments prove that it is. Apterous forms reside throughout the season on the primary host-cherry, and in addition alatae, produced during the summer, migrate to and establish colonies on a secondary host.

The cherry aphid apparently has an unique life cycle. Some plant lice with the alternating food habit, e.g., *Eriosoma lanigera*, *Prociphilus tessellata* and *Myzus persicae* occur at all times of the year on their secondary hosts, but, so far as we are aware, no migratory aphid other than *M. cerasi* normally resides on the primary host all year. If we were given to theorizing, we would suggest that at the present time, the black cherry aphid is in the transitional stage between the migratory type (e.g., *A. avenae*) and the more specialized monophagous type (e.g., *A. pomi*).

MIGRATORY TESTS.

In order to discover the secondary host a series of migratory experiments were made with common plants belonging to the following genera: *Agropyron*, *Dactylis*, *Poa*, *Polygonum*, *Rumex*, *Chenopodium*, *Amaranthus*, *Stellaria*, *Silene*, *Ranunculus*, *Erysimum*, *Capsella*, *Lepidium*, *Brassica*, *Lobularia*, *Potentilla*, *Prunus*, *Trifolium*, *Vicia*, *Medicago*, *Malva*, *Nepeta*, *Stachys*, *Verbascum*, *Plantago*, *Cirsium*, *Arctium*, *Hieracium*, *Lactuca*, *Senecio*, *Ambrosia*, *Aster*, *Sonchus*, *Solidago*. The migrants fed to some extent on cherry, *Polygonum persicaria*, *Chenopodium album*, *Rumex acetosella*, *Stellaria media* and *Malva rotundifolia*, but did not reproduce on these plants. Young were deposited on *Polygonum aviculare*, *Rumex crispus*, *Lobularia maritima*, *Verbascum thapsus*, *Plantago lanceolata*, *P. major* and *Solidago* sp., but they did not grow and soon succumbed. Weak colonies developed on *Brassica arvensis*, *Erysimum cheiranthoides* and *Capsella bursa-pastoris*.* On *Lepidium apetalum* strong colonies were readily established and were carried through to the end of the season.

FIELD OBSERVATIONS.

In the field our search for migrants was rewarded by finding them and their progeny on wild peppergrass, *L. apetalum* growing within two hundred yards of an infested cherry orchard (first collection was made on July 9th, 1917). The aphid was not taken on any other plant but in spite of this we are strongly inclined to believe that other crucifers besides *Lepidium* serve as secondary hosts. Next season, we hope to be able to prove this.

THE EGG.

The minute, oval-shaped eggs (.68 mm. x .32 mm.) change within a few days after being laid from watery green to black. They are deposited around the buds and on the rough bark of twigs and branches. They commence to hatch early in spring when the buds are swelling. In the cherry orchard (situated on the lake shore) which we had under observation this past season, the period of hatching extended from the 17th to the 24th of April. All the eggs hatched at least nineteen days before the cherry buds actually burst.

*One colony on *Erysimum* survived until autumn, at which time it gave rise to return migrants and males.

THE STEM MOTHER.

The newly hatched, dark green stem mothers migrate to and settle on the buds, where they feed on the green tissue. Later on, they attack the tender leaves and blossom buds. After moulting four times, they reach maturity in four or five weeks and commence within a day or two to give birth to living young. The first young are produced about the time the most advanced blossoms open.

DESCRIPTION. The adult stem mother is a glossy black, globose insect, about 2.07 mm. x 1.44 mm., with 5-jointed antennæ.

BREEDING EXPERIMENTS.

In our insectary experiments with 15 individuals the following data were obtained:—

Number of instars: Five.*

Length of Nymphal Life: Maximum 37 days, minimum 30 days, average 31.8 days.

Age when reproduction commenced: Maximum 37 days, minimum 30 days, average, 32.6 days.

Reproductive period: Maximum 41 days, minimum 26 days, average 32.9 days.

Fecundity: Greatest number 198 young per insect, smallest number 80 young, average number 154.9 young.

Daily production of young per female: Maximum 18 young, minimum 1 young, average 4.8 young.

Total length of life: Maximum 85 days, minimum 57 days, average 69.5 days.

SUMMER FORMS ON CHERRY.

The progeny of the stem mothers develop into apterous viviparous females. This generation is then followed by brood after brood of wingless and winged aphids. The apterous forms remain on cherry and may be found on this tree from spring till late autumn. The alatae on the other hand leave the cherry and migrate to *Lepidium*.

APTEROUS VIVIPARA.

During the early part of the season wingless forms are very common but as the summer wears along they diminish in numbers. This decrease is due to the production of alatae, to the effective work of predaceous enemies and also to the drying up of the affected foliage. Moderately infested trees are liable to support more apterous lines throughout the season than are heavily infested ones. In fact, on badly attacked cherry trees the aphids may wholly disappear by mid-summer. For example, in 1915, in a seriously infested orchard at Vine-land, no plant lice were found on the trees after mid-August.

DESCRIPTION. The adult wingless vivipara like the stem mother is globose and glossy black. Unlike the latter, however, it possesses 6-jointed antennæ. In size, it is about 2.16 mm. x 1.17 mm.

*In order to avoid repetition I might mention here that all the other forms have five instars.

TABLE NO. 1—APTEROUS VIVIPARÆ—M. CERASI.

Generation.	No of individuals.	Length of Nymphal Life.			Age when reproduction commenced.			Reproductive Period.			Fecundity per insect.			No. young per day per insect.			Longevity.			Mean Temperatures.*	Dates.*
		Max.	Min.	Aver.	Max.	Min.	Aver.	Max.	Min.	Aver.	Max.	Min.	Aver.	Max.	Min.	Aver.	Max.	Min.	Aver.		
2nd	14	20	14	17.5	20	15	18	28	5	23	184	37	143	18	1	6.2	53	25	44.6	54.6	18/5-9/6
3rd	5	14	12	13.2	14	12	13.2	27	12	20.4	156	62	107.4	14	1	5.3	44	25	35.8	61	5/6-19/6
4th	5	11	8	9.6	12	9	10	24	20	21.8	118	97	105.6	11	1	4.8	41	30	36	63	19/6-30/6
5th	5	12	10	10.6	12	10	11	24	11	17.6	120	46	88.4	16	1	5	35	23	29.2	63.7	28/6-11/7
6th	5	10	9	9.2	10	9	9.4	24	12	18.6	88	48	67.4	14	1	3.6	38	22	30	68	9/7-21/7
7th	5	8	7	7.4	9	7	7.8	26	4	18.6	113	19	74	14	1	3.9	35	11	26.6	78.4	18/7-1/8
8th	5	8	6	6.6	9	6	7.2	30	14	22.8	93	44	73.8	11	1	3.2	40	22	31	74.1	26/7-12/8
9th	5	9	6	7.2	10	6	7.6	27	4	18.4	93	16	60.8	9	1	3.3	39	11	27.2	70.9	1/8-20/8
10th	5	9	7	7.8	10	8	8.4	37	19	28.8	127	51	93.4	10	1	3.2	47	29	38	69.1	8/8-27/8
11th	5	12	7	8.6	13	7	9	32	24	27.8	106	42	65.6	7	1	2.4	61	39	49.2	66.7	16/8-4/9
12th	4	16	10	13.5	16	10	14	43	32	37.5	96	27	62.3	9	1	1.7	72	57	63.8	60.5	24/8-19/9
Last Born Series.																					
2nd	14	12	9	10.7	13	9	11.1	26	13	18.7	140	65	91.2	13	1	5	43	25	30.8	63.1	13/6-9/7
3rd	14	11	6	8	13	6	8.6	25	12	18.5	101	46	73	13	1	3.9	40	18	27	72.1	5/7-1/8
4th	13	12	6	7.9	13	6	8.6	36	10	22.6	117	18	76.3	9	1	3.3	61	19	37.2	70	24/7-6/9
5th	7	22	8	13.6	22	8	14.6	34	11	19.6	95	20	47.3	8	1	2.4	85	23	43	56.4	20/8-20/10

* During nymphal development.

BREEDING EXPERIMENTS.

In this form, the duration of nymphal life varies very considerably due in a large measure to the great differences in temperature to which the females born early in spring and those born during the summer are subjected. (See table No. 1.) In our experiments the average nymphal life in the second generation was 17.5 days, in the eighth it was 6.6 days.

In the matter of reproductive capacity, this form is slightly less prolific than the stem mother (see table No. 1). One hundred and eleven apterous forms produced an average of 80.9 young per insect.

SUMMER MIGRANT.

Migrants are produced on cherry trees during a period extending from mid-June to the middle or latter part of August.* The vast majority of them, however, develop and migrate before mid-July.

DESCRIPTION: The head, thorax, cornicles, and cauda of the migrant are black and the abdomen varies in colour from dark or black green to dark brown. It is about 2.16 mm. long.

FACTORS WHICH PRODUCE ALATÆ.

A question which should be touched on here is: what agencies tend to produce winged-forms? We are inclined to believe that three of them are, the influence of over-population, the instinct to migrate, and, to a small extent at least, the influence of generation.

With a monophagous species such as *Aphis pomi* the appearance of alatae is apparently due in a large measure to overcrowding. This hypothesis explains why, by preventing crowding, it is possible to rear apterous lines of the green apple aphid through from egg to egg. With a migratory species, however, such as *Aphis avenae*, another factor comes into play, viz.: the instinct to migrate. In some of our experiments with the oat aphid one individual was reared on each host plant (apple), but in spite of this superabundance of food and space, all the lines gave rise to migrants—the aphid in order to complete its life cycle had to migrate.

And now to return to the cherry aphid, this louse behaves more like a monophagous than a migratory species. The migratory instinct appears to be attenuated and seemingly is of little or no importance in the production of winged forms. In our insectary work, it was observed that alatae did not develop unless the plant lice were excessively crowded.

The influence of generation as a minor factor is suggested by the fact that no winged forms occur in the 2nd generation of *M. cerasi*—at least we did not obtain any.

BREEDING EXPERIMENTS.

In our experiments with a large number of migrants the following data were obtained:—

Duration of nymphal life. Migrants took from 7 to 13 days to reach maturity, or in other words, one to four days longer than contemporary apterous viviparae.

Reproduction: Migrants gave birth to young one or two days after they were transferred to *Lepidium*.

*A few migrants were taken on cherry on August 27th, 1917.

Reproductive period: Maximum 26 days, minimum 2 days, average 11.6.

Fecundity: The average reproductive capacity of 18 individuals was 16.7 young per insect, the maximum and minimum being respectively 37 young and 4 young.

Daily production of young: Maximum 8, minimum 1, average 1.7.

Total length of life: Maximum 56 days, minimum 4 days, average 15.4 days.

SECONDARY APTEROUS VIVIPARÆ.

The progeny of the cherry to *Lepidium* migrants develop into wingless viviparæ and are followed by brood after brood of their kind until fall at which time return migrants and males are produced, concerning which more will be said later. For want of a better name, the wingless forms on *Lepidium* are referred to in this paper as secondary apterous viviparæ.

DESCRIPTION. This form is much smaller and is lighter in colour than its fellow on cherry. It is dull brown in colour and is about 1.26 mm. x .68 mm. in size.

BREEDING EXPERIMENTS.

In experiments with 37 apterous forms the following data were obtained.

Length of Nymphal Life: Maximum 19 days, minimum 6 days, average 9.8 days.

Age when reproduction commenced: Maximum 19 days, minimum 6 days, average 10.2 days.

Reproductive period: Maximum 44 days, minimum 9 days, average 24.5 days.

Reproductive capacity per female: Maximum 83 young, minimum 19 young, average 44 young.

Daily production of young per female: Maximum 7 young, minimum 1 young, average 1.8 young.

Total length of life: Maximum 75 days, minimum 17 days, average 40.8 days.

THE ALATE SEXUPARÆ.

In early autumn migrant aphids* are produced on *Lepidium* and return to the cherry where they deposit the egg-laying females. At the same time the monophagous lines on cherry give rise to large numbers of winged forms† which also give birth to egg-laying females. In other words the sexuparæ—the mother of the sexual female—is produced on both the secondary and primary hosts.

DESCRIPTION. This form is very similar in appearance to the summer migrant.

BREEDING EXPERIMENTS.

The data obtained from the sexuparæ bred on cherry (primary host) and on *Lepidium* (secondary host) are presented herewith in tabular form.

*Return migrants were found on *Lepidium* from Sept. 17th to October 29th.

†Sexuparæ were produced on cherry from Sept. 9th to the close of the season.

TABLE No. 2—SEXUPARÆ—M. CERASI.

Host.	No. of Individuals.	Length of Nymphal Life.			Reproductive Period.			Fecundity per Insect.			Daily Product of Young per Insect.			Longevity.		
		Max.	Min.	Aver.	Max.	Min.	Aver.	Max.	Min.	Aver.	Max.	Min.	Aver.	Max.	Min.	Aver.
Primary (Cherry)	13	44	14	20.3	11	2	6	11	2	7	6	1	1.2	61	19	47.1
Secondary (Lepidium)..	6	19	14	16.3	5	2	3.2	6	3	5	4	1	1.6	70	24	52.3

THE MALE.

Early in October winged males* appear on the secondary host and fly back to the cherry where they mate with the oviparous females. No males are produced on cherry. This means that, in spite of the pronounced tendency of the black cherry aphid to live a monophagous life on cherry, the completion of its life cycle is still dependent on the existence of a secondary host.

DESCRIPTION. Antennæ; head, thorax, cornicles and external genitals black. Abdomen reddish brown with dark transverse bars, and three black lateral spots. Length 1.53 mm. to 1.62 mm.

NYMPHAL LIFE.

The average duration of nymphal life of 29 individuals was 35 days, the maximum and minimum being respectively 25 and 44 days.

THE OVIPARA.

This form may be found on the leaves, twigs and branches up to the time all the aphids are killed by frost.

DESCRIPTION. The general colour of the ovipara is dark brown. The abdomen may be tinged with green. In size, it is about 1.8 mm, x .8 mm.

BREEDING EXPERIMENTS.

In our experiments with 13 individuals the following data were obtained:—
Length of Nymphal Life: Maximum 33 days, minimum 21 days, average 27.4 days.

Age when egg-laying commenced: Maximum 53 days, minimum 26 days, average 40.2 days.

Reproductive period: Maximum 22 days, minimum 1 day, average 10.2 days.

Fecundity per female: Maximum 8 eggs, minimum 1 egg, average 4.2 eggs.

Longevity: Maximum 71 days, minimum 52 days, average 61.6 days.

NUMBER OF GENERATIONS.

According to our experiments there are from six to fourteen generations of this insect per year in the Niagara district.

*Males developed on *Lepidium* from October 6th to November 17th.

NATURAL CONTROL.

Insect Enemies.

Like most species of plant lice the cherry aphid is harassed by many insect enemies. Amongst these enemies are numbered the following:—

Coccinellidæ—*Adalia bipunctata* Linn. (Apparently the most important predator), *Coccinella 9-notata* Herbst., *C. transversoguttata* Fabr., *C. trifasciata*, Linn., *C. sanguinea* Linn., *Anatis 15-punctata* Oliv., *Hippodamia 13-punctata* and *Scymnus collaris*.

Syrphidæ—*Syrphus americanus* Wiedemann, *S. ribesii* Linn., *Allograpta obliqua* Say.

Cecidomyiidæ—*Aphidoletes meridionalis* Felt.

Chrysopidæ—*Chrysopa* sp. (No lace-wing flies were reared).

Acarina—An undetermined, bright, orange red species.

WEATHER AGENCIES.

Undoubtedly the most effective weapons employed by Nature in checking the multiplication of this, and other species of plant lice are weather agencies. Heavy rains wash off large numbers of aphids, especially in spring before the pseudogalls are formed. Droughts are frequently disastrous to the lice, chiefly, we think, because such weather deprives the host plants of succulency. Early frosts and wind storms also may destroy countless numbers of immature sexual females by causing the foliage to drop prematurely.

ARTIFICIAL CONTROL.

The cherry aphid is most vulnerable early in spring just before the buds break. At this time all the eggs have hatched and the young stem mothers, feeding on the buds, are absolutely without protection. Thorough spraying at this stage with a good aphidicide will destroy all or practically all the lice.

Last spring, we tested this remedial measure in a Vineland orchard. One-half of the orchard—the check—was given the usual treatment with lime sulphur. In the other half, lime sulphur combined with Black Leaf 40 ($\frac{3}{4}$ pint to 80 gallons) was used and the application was not made until shortly before the buds burst. Because of the slow multiplication of the lice on the check trees, due to unfavorable meteorological conditions, the results obtained from this experiment did not show up to advantage until early July. At that time, the following notes were made:—

“Examined all the trees sprayed with Black Leaf 40 and found only one small colony. In the check block all the trees are more or less infested and some are badly attacked. By noting the condition of the foliage—normal or curled—it is a simple matter to tell where the treated rows end and the unsprayed section begins.”

Literature Cited.

(1) Slingerland and Crosby:

Manual of Fruit Insects, p. 312.

(2) Sanderson, E. D.:

Insect Pests of Farm, Garden and Orchard, p. 666.

- (3) O'Kane, W. C.:
Injurious Insects, p. 318.
- (4) Gillette, C. P.:
The Monthly Bulletin of State Commission of Horticulture, California,
Vol. VI, No. 2, p. 63.
- (5) Quaintance and Baker:
Farmers' Bulletin 804, U.S. Dept. of Agr., p. 24.

FATHER LEOPOLD: Is it a fact that there is no male on cherry?

MR. ROSS: The male is produced only on the secondary host.

DR. HEADLEE: We found with apple aphid that there was a peculiarly susceptible stage in the egg just before hatching. The egg has three layers, one of which is a transparent layer, and this layer splits about a week before hatching. The egg is then very susceptible to light, moisture and other influences, and to chemical sprays, etc., and I wonder if Mr. Ross has found a similar condition in the eggs of the Black Cherry Aphid?

MR. ROSS: No. I have not found this with Black Cherry Aphid, but I have with Apple Aphids. We fumigated trees that were heavily stocked with the eggs of the Oat Aphid and *Aphis pomi* about ten days before the buds burst. We destroyed one hundred per cent. of the eggs with hydrocyanic acid gas, 1 oz. to 100 cubic feet, but we have not done anything with the Cherry Aphid.

DR. HEADLEE: Have you experimented with chemicals on the eggs?

MR. ROSS: No.

DR. HEADLEE: We found that carbolic acid was effective in dealing with the apple aphid egg at this stage.

PROF. CAESAR: Was this a laboratory experiment or an orchard experiment?

DR. HEADLEE: Both.

PROF. CAESAR: Dr. Headlee gives us another suggestion, and that is what most workers are seeking for. From my own observations it would appear that lime-sulphur wash seems to have quite an effect during some seasons, and in other seasons it has almost no effect, or a very slight effect.

DR. HEADLEE: The addition of Black Leaf 40 seems to increase the killing effect of lime-sulphur on the egg. I think Parrott and Hodgkiss had some success with this.

A COMEDY OF ERRORS.

FRANCIS J. A. MORRIS, PETERBOROUGH.

It is surely astonishing how often the two Dromios have made their appearance on the entomological stage. These amusing little comedians seem never to pall, and their simple farce, trite as it is, continues—like a Punch and Judy show, or the Marks Bros.—to draw crowded houses and evoke peals of delighted applause. It speaks well for the wholesomeness of our hobby that the entire brotherhood of us should remain so perennially gullible, so good-humoured over mistakes, and so easy of diversion. Masquerading must be as old as the hills, and mistaken identity forms one of the leading motives in the world's literature. It is found in the oldest sagas. Aristotle remarks how effectively Homer uses it in the Odyssey; and still to this day it remains one of the great well-springs of Romance, now sparkling in the lightest of comedies, now darkening the unplumbed gulfs of tragic depth.

All enthusiasts are apt to be uncritical, and collectors for a variety of reasons are probably more prone to error than most people. Our zeal outruns discretion; in the flush of a fresh capture we are at the mercy of two opposite impulses; we would dearly love our prize to prove something quite new, and we fairly ache to get it placed just where it belongs, with its next-of-kin in our cabinet. Now, an insect being a most intricate complex of diverse features, we are very apt—the wish being father to the thought—to seize on something superficial and strain a point of identity or of difference. How often in this way have two individual insects, created male and female of one species after their kind, been divorced to opposite ends of the collecting case from some purely sexual or even accidental distinction of size, marking, or structure? And the contrary error of confusing types essentially different, augmented even, on occasion, by the distracting presence of mimetic forms, beguiles the unwary just as often; and here it is that the two *Dromios* get their cue to come in and play the cat and banjo with our cabinet. I remember as a small boy arranging my collection of birds' eggs by similarity of colour-pattern, and under the impression that they were just undersized eggs of the common chaffinch, innocently disposing of some very rare red-poll's eggs to a more mature oologist (an Aberdonian and already one of the shrewdest of Scotchmen).

Henshaw's check-list of North American Coleoptera no doubt teems with synonyms; but on the other hand, if you trace back the history of a standard check-list, from its latest edition to its earliest, you will meet almost as many instances of genuine species that have blushed unseen for generations under a pseudonym; and though some authorities are undoubtedly overfond of multiplying species, there can be little question that the most carefully prepared and up-to-date check-list still contains a few rightful heirs, waiting to come into their own, hidden under the bushel of a synonym. It is the story of one of these neglected claimants that I shall try to tell you here.

When I entered the field of entomology more than twelve years ago, it was by way of a bridle-path from the neighbouring realm of botany. And the natural inclination to make my hobby of wild flowers run in double harness with that of beetles, was given a final set in the very first season of 1905; I went over to Great Britain on a botany trip at the end of June, and formed there the habit of carrying a cyanide bottle out with me on all occasions; whatever I saw in the shape of a beetle on stem, leaf or blossom, I captured, noting its season and habit. It was this somewhat peculiar and restricted form of collecting that soon led me to a number of unusual finds and at last landed me, as a sort of monomaniac, among the Longicorns. Moreover, my running mate in Port Hope, the man whose hobby trotted to the same tune as mine, had several years the start of me in entomology, and it was only by drawing on my capital of plant-lore that I could hope to turn the handicap into a neck-and-neck race.

I well remember how closely I watched in 1906 for every new flower to unfold from early April on through the weeks to August and September. And before May was over I had already made some finds quite new to my companion, whose cabinet specimens had hitherto enabled me to determine nearly all the contents of my cyanide bottle. I can still plainly see in memory the hawthorn on the edge of a certain wood where some of my first surprises occurred. And foremost among these was a dusky grey and black insect so like one of the common large black ants, that it was only after passing it over several times that I noticed the long gracefully-curving antennæ, and hastened to bottle my find. As soon as I got home I communicated this new discovery to my fellow-collector, and he included some specimens in a box of material he was on the point of sending away for identification.

Now the fervor of a new pursuit had prompted me to purchase a copy of what has ever since been a kind of bible to me, LeConte and Horn's Key to the Generic Classification of North American Coleoptera. Pending the return of the box with its inmates labelled, I occupied myself with a lens and the famous key, unlocking the riddles of generic status. After a good deal of trouble I worked down my specimens to the group *Anaglypti*, and once I had done that the rest was plain sailing; the insect had no ivory vittæ and could not be *Eudercus*; it had not round eyes, so was not *Tillomorpha*; it must be either *Cyrtophorus* or *Microclytus*. Here the specific name *gazellula* under the latter genus was very tempting, for never had I seen a Longhorn with more graceful outline or more elegantly curving antennæ than this; but there was no room for choice, the fourth antennal joint was more than twice as long as the second, and it simply *had* to be *Cyrtophorus verrucosus*—even though this being interpreted should mean the “lumpy hunch-back,” a name more appropriate surely for some African rhinoceros or wart-hog, or for our own American buffalo, than for this dainty little chamois.

Flushed with the pride of my discovery, I ventured to prophesy what name my fellow-collector would find on the label when his box came back. You may imagine how nonplussed I was, when we opened the parcel, to find instead the legend—*Microclytus gazellula*. I was so sure of my identification and so full of faith in my bible of entomology that I had actually the hardihood to write to the curator of the museum explaining my predicament. Almost by return of post came word that our specimen had been identified by comparison with an insect so labelled in a collection to which the Museum had fallen heir; the original owner had wrongly determined it; LeConte and Horn were perfectly correct, and the insect was undoubtedly *Cyrtophorus verrucosus*. So, after all, my trouble had not gone for nothing.

It is obviously impossible in a large collection to verify all the names, unless the institution is fortunate enough to have at its disposal a whole army of expert systematists. But what ever-widening rings of error spread from cabinet to cabinet by this same practice of taking things on trust. No wonder Descartes swore to question everything, even to mathematical axioms, rather than succumb to the tyranny of tradition; the world of thought has indeed good reason to thank God for its sceptics.

This creature captured on hawthorn has long been a great favourite of mine; no doubt partly because it was by pursuing a line of my own that I had made its discovery, and the work had the novelty and fascination of original research. But few who have closely examined this little insect can help admiring the exquisite grace of symmetry and proportion in its outline, the nobly arched dome of the thorax, the bold elevation of the elytral base, balanced by the swelling fullness of form just forward of the terminal declivity; on the whole creature not a single bright tint, nothing startling or bizarre in pattern; the colours very plain and the design of the simplest; almost Quaker-like in the severity of its garb; passing by the gentlest of half-tone gradations from velvety black hood and mantle to skirt of grey-drab, the whole uniform from head to foot broken only by two or three delicately pencilled lines of white, forming a median group of curving diagonals and transverse band between shoulder and waist.

Until midsummer this formed a solitary species in the *Anaglypti* group of the *Clytini*; but throughout July specimens of *Eudercus picipes* were captured quite abundantly in a variety of blossoms; this creature, too, is extremely ant-like in appearance and even in movement; moreover, as representing the *Anaglypti* in which ivory vittæ are present, it roused no small interest in us young collectors.

The success of our blossom-hunting experiment made us await the spring of

1907 with great eagerness, and we certainly deserved some reward during the season, for we were very diligent, and must have peered into thousands of floral envelopes in never-tiring search from April to July. There can be no question that it was this extraordinary pertinacity of ours that led to the strange coincidence mentioned in a former paper (Can. Ent. XLI, 12, Dec., 1909). And here the curtain rises on our second act.

On Saturday afternoon, June 15th, 1907, I discovered for the first time how attractive the blossom of spiked maple was to beetles. Spiked maple and dogwood formed a great part of the edge of a swampy piece of wood about one and one-half miles north of Port Hope. On a hot, sultry afternoon such collecting ground proved, as I well remember, a perfect inferno of mosquitoes; but the sight of crowding *Lepturas* never seen before (e.g., *L. vibex*, *L. exigua*, *L. capitata*) was simply irresistible, far harder to withstand than a myriad of mosquitoes.

The following morning my fellow-collector and I had agreed to meet on the railway track not far from this spot and tramp up to our favourite *rendezvous* of the "North Wood," near Quay's Crossing. I determined to set out ahead of time and look over the spiked maple before going further north. While busy bottling a splendid haul of *Gaurotes cyanipennis*, *Encyclops ceruleus*, and *Cyrtophorus verrucosus*—all treasures in those days—I was aware of a small pale-looking specimen of what I took to be this last on a blossom of spiked maple. I can still see it, nestling in the bloom as my fingers approached it, and I well remember wondering whether this diminutive specimen had faded or was merely disguised miller-like for the nonce in a dusty coat of yellow-grey pollen. When I joined my friend we went north and visited (among other things) the hawthorn that had proved so lucky the season before. We both made captures on this tree; among mine a small species of oak-pruner, and among my friend's—a diminutive *Anaglyptus* that he bottled under the impression he had captured *Cyrtophorus verrucosus*.

Only when we got home, and each in his own privacy came like a modern Ali Baba to pour out his jar of treasure, did we become aware of a stranger in the midst. For my part I hastily turned up LeConte and Horn and almost at once concluded that I must have run to earth either *Tillomorpha* or *Microclytus*; the lens revealed an emarginate eye, so *Tillomorpha* was out of the question. And it was then that things began to happen thick and fast; you must remember that I had never seen *Microclytus*, but the book (my bible) declared the second antennal joint in *Microclytus* almost as long as the fourth, and in my insect, do what I might—by the greatest stretch of imagination, it remained barely half as long (Sc. 1:). Next day, Monday, I hurried down to my companion's and had not more than begun to unfold my tale of a stranger when he capped it with his (Sc. 2:). We were both equally eager to compare the two specimens, and no sooner had I set his insect under the lens and taken a glance at the antennæ, than I knew he had captured what I had not, a genuine specimen of *Microclytus gazellula* (Sc. 3:).

But what was my insect? I decided it must be an undescribed species of *Cyrtophorus*, and there the matter rested till some time after the November meeting of 1909, where I read a paper called "Guests at the Banquet of Blossoms." Mr. Chagnon then very kindly offered to determine my beetle, and it was with quite a flutter of excitement and pleased anticipation that I despatched the little enigma to him. You may partly guess my chagrin when I got word from him that it was the male of *M. gazellula*, and that the female only, it had been discovered, had the peculiar proportion of antennal joints 2-4 as described in LeConte and Horn. I felt, I must confess, very sceptical about this determination, and in 1910 I purchased from New York quite a number of Longicorn beetles for comparison;

among them, single specimens of *Tillomorpha* and *Microclytus*; and certainly when I set this last and my capture side by side, I could not help wondering whether anybody had really ever taken a pair of *M. gazellula* in the act of mating. And here the curtain falls on Act II of our little drama.

Ignoring the unities of time and space, let us next suppose ourselves transported to Peterborough in the spring of 1916. Gentlemen! the Wood of Desire! On my first trip through this Eldorado in 1915 I had been struck by the resemblance of a certain trough of swampy ground fringed with spiked maple and dogwood, to the corner of Choate's Wood at Port Hope, where this unique little *Anaglyptus* had been taken. It was too late that season for anything but the last spikes of maple blossom; yet, though I found nothing new on them, there were, nevertheless, anthophilous longicorns enough to bring me to the Wood of Desire very early in 1916.

On Victoria Day I made captures of *Pachyta monticola* about white trillium on the west of the wood, and noted a projecting spur of land at this point well covered with sumach thickets, small balsam poplar, elder, dogwood, choke-cherry, pincherry, thimbleberry, bracken, and other growth: a kind of compromise between the forest at its base and the arable country that confronted and flanked it, a no-man's land that I have always found peculiarly attractive, affording as it does to woodland denizens, sunshine, shelter, and food. Though the spiked maple would not be out before the second week of June at the best, choke-cherry and early elder burst at least a fortnight sooner, and things that season had come on with a rush since the hot spell of the middle of May.

Accordingly, about eleven a.m. on the 4th of June, after a tramp of over two hours, I found myself at this collecting ground. It was a hot, sultry day, and soon after noon thunder began to rumble in the west. The only blossom that seemed to be luring insects—indeed almost the only blossom that was fully out at this time—was choke-cherry, and I had been renewing my acquaintance with quite a number of old friends including *Cyrtophorus verrucosus*, when I suddenly spied a specimen of the strange little *Anaglyptus* of 1907 in a cluster of choke-cherry. The shrub on which I captured it was only a few yards from the rail fence that skirted the wood, but there was choke-cherry in abundance running right out to the end of no-man's land. Every cluster on this fateful shrub I carefully scanned; then every cluster on two or three neighbouring shrubs; then a straggling tree of choke-cherry, drawing down its branches one by one and ranging closely over the flower clusters. By this time I had captured five specimens; then I hunted over most of the choke-cherry towards the outer end of the promontory, and drew an absolute blank; then I came back towards the wood on a more northerly line, still unsuccessfully, till I reached the fence on the skirts of the wood proper; here in a large tree of choke-cherry I captured one more (six); then I returned to the scene of my first captures and almost immediately took a pair mating, and presently (treading on one another's heels) three singletons. And on the instant the sun was blotted out, the sky grew violet ink and the rumbling threats of distant thunder became a present reality; down came the rain and I fled for the road.

I was soaked long before I got there, but took shelter under a large balm of gilead; while standing there I noticed on the opposite side of the road a small shrub of choke-cherry, which served to feed my spleen during the rest of the storm. Everything was deluged before the thunder passed, and more work in wood or field that day was out of the question; but before setting off on my eight-mile homeward trudge, I stepped sardonically over the way to the draggled little shrub of choke-cherry: and there in its clusters, snug and fairly dry, I found two specimens of *Cyrtophorus verrucosus* and one more of my little enigma. The roads were a

perfect quagmire, my clothes were wringing wet, my boots were sodden and cheeped and slithered at every step; one of the dreariest, most draggled-tailed trips I ever made; and I verily believe I would have been on the road yet, but for what I knew were the contents of my cyanide bottle, twelve genuine specimens of *Anaglyptus enigmaticus* including both sexes of the species.

The rest of the month proved wet and cold; the wood was so distant that it could only be visited at weekends; on my next trip I found the choke-cherry all over, and on the dogwood and viburnum that were rioting in its place I could find no further trace of the beetle. Right on the north margin of the wood, however, on spiked maple, I captured one solitary specimen on June 12th and two on June 18th. Sixteen specimens—counting the unique capture of 1907—made a fine series for comparison. But I found, now, reason to deplore having put my mating pair into the cyanide bottle instead of segregating them. Not that I had a shadow of doubt myself about this being a genuine species; I was absolutely certain of that before I ever saw a pair together; but how could I convince my fellow-collectors? As soon as I got the insects out of the killing-bottle, I examined the antennæ: all fifteen specimens had the second joint less than half the length of the fourth; not one of them, therefore, was the female of *Microclytus gazellula*; equally certain was it they were all one species and comprised both sexes. Some days later I relaxed them all carefully on damp blotting paper in a covered tin box, and with a fine pair of forceps drew the antennæ taut over the back in a straight line parallel with the suture; in eight specimens the antennæ were as long as the body, in eight they just overlapped the median band of pubescence.

I enclosed a pair in a box which I posted to Mr. C. A. Frost, of Framingham, Mass., asking him if these were not the insect Casey had named for him *Microclytus frosti*. Then I sent to Rochester for a micrometer scale and to Guelph for the loan of one or two specimens of *M. gazellula* from the Society's collections, explaining that I wished to make a comparative study. Presently came a letter from Mr. Frost that my insect *was* his insect, and both (he believed) were Dr. LeConte's insect *M. gibbulus*. Next came a parcel from Guelph containing two more specimens of the identical insect I had just captured, both labelled *Microclytus gazellula*. I then wrote to Mr. Frost and to some other collectors in the States for specimens of the genuine *M. gazellula*, but not one of them so far has been able to secure a specimen for me. For several months I advertised in the *Canadian Entomologist* but with a like want of success.

In the autumn of 1916 I got a letter from Mr. Frank Mason, of Philadelphia, to say that the beetle I wanted was extremely rare and that he had only a single specimen; his letter incidentally served to complicate matters by declaring among other things that the insect in question was now listed not as *Microclytus gazellula*, Hald., but as *Anaglyptus compressicollis*, Castenau and Gory; for it at once began to dawn on me that if there were two insects so similar as to have long been mistaken for one another, the problem of nomenclature was likely to be no less complicated than that of my capture's natural status; unless the types of Castenau and Gory's description in the thirties and of Haldeman's description in the fifties had been preserved, no one would ever know which of these two little jokers had sat in either studio for his portrait.

For my part I was drawn rather to the question of the insect's true place in nature, and proceeded to apply, among other things the micrometer scale I had purchased from Bausch and Lomb to a solution of the problem. To supplement the single specimen of *M. gazellula* in my cabinet, I borrowed Dr. Watson's genuine example of 1907 from Port Hope, and then selected several specimens (male and female) of my insect that tallied in size with these two. The examination resulted

in a discovery of no little interest and perhaps some importance. If you refer to LeConte and Horn's classification you will find it stated that *M. gazellula* has the second antennal joint long—fully half as long as the third and nearly as long as the fourth. Now in regard to the relative length of those three joints, this is a perfectly true statement; but the peculiar proportion in this species is due not to the greater length of joint 2, but to the abnormal shortness of joints 3 and 4. The length of the second joint of *Microclytus gazellula*, *Microclytus gibbulus* and *Cyrtophorus verrucosus*, in specimens of the same size and quite irrespective of sex differs not a hair's breadth, i.e., in all three insects it is extremely short. The peculiarity of *M. gazellula* consists in the third joint being only twice (instead of three or four times) and the fourth joint only one-and-a-third times (instead of two or three times) the length of the second point. The mistake is a natural one, almost inevitable; it is due to an optical illusion; the eye passes in all three insects along the third joint, a very long one, to the fourth, a much shorter one; then back to the second, and finding the second in *M. gazellula* almost the length of the fourth, but in *M. gibbulus* and *Cyrtophorus verrucosus* much less than the fourth, judges the second accordingly to be absolutely long or absolutely short.

In *M. gazellula*, then, the second antennal joint is perfectly normal for the group, but joints three and four are abnormally short; and from this follows an important corollary; the remaining joints bear a fixed relation to the first three, and if in *M. gazellula* these basal joints are shorter than in the other members of the group, the whole antenna will be shorter. I have been able to examine only three specimens of *M. gazellula*, and in none of them does the antenna, when drawn taut, exceed the median band of pubescence, while in one large specimen it does not even reach the second diagonal line of pubescence; I feel confident this last is a female and I would venture to prophesy that no specimen of the genuine *M. gazellula* will be found (even male) with antennæ exceeding the median band. In *M. gibbulus*, as I have said, the male antennæ are as long as the body and the female slightly exceed the median band. There are other differences that I could mention between the insects—as in the white marks on the under side, the prevalence of long flying hairs, and the shape of the prothorax—but I should overstep the limits of time and patience.

These micrometer tests were made in the late fall of 1916, and all this time I was so busy planning for the next season's campaign, that during most of the intervening months I went about like one in a dream. You may have thought, perhaps, you met me, or even stopped and spoke with me that winter, but all you really saw was the empty jacket of my body, a "toom tabard" wholly uninformed: heart and soul, I was far away at the Wood of Desire, stalking *Microclytus gibbulus*. In November I bought a bicycle; in April I learned to ride it; in May I got half a hundred pill-boxes and as many gelatine capsules, and, like some itinerant quack gathering samples for his nostrums, proceeded to trundle myself out to the Wood of Desire.

The choke-cherry, like other blossoms, was more than a week late this year, but I managed to get in about three good days' collecting in June while the blossom was at its height, and the results of my campaign in more than one respect will astonish you. Of this obscure little insect I actually captured over seventy specimens in one day, twenty on a single tree, including a mating pair; all this on choke-cherry and before the 15th, but even in the last week of the month I bagged a belated little covey of five, three on dogwood and two on spiked maple; the captures were made at four different points on the wood's edge, over a mile apart between extremes; and the entire catch for the season was upwards of one hundred specimens. Of these I brought home over fifty alive in the solitary confinement of my

little pill-boxes; I then turned the captives loose into a large cardboard box with a slab of glass over the top. In a quarter of an hour I had secured eighteen mating pairs in my insect Agapemone.

While watching the movements of these little beings I found myself curiously reminded of animals we usually reckon far higher in the scale of creation. For I observed the most diminutive male in this assemblage—a perfect Lilliputian—having evidently singled out his mate, make a bee-line for the largest female in sight; and, to complete the analogy, his suit prospered and he presently waltzed away like the hero of Hans Breitmann's party with the Matilda Jane of Brobdingnag. Traces of this same eccentricity of preference, it is whispered, have been found among human beings; nay, specimens have actually been collected by anthropologists and transferred to their cabinets, pinned and labelled "Atavism"; poor hapless freaks of human frailty, caught like Ares and Aphrodite in the meshes of a science as pitiless as the art of Hephæstus, and exposed in all the nakedness and shame of cold print to the inextinguishable laughter of the Olympians and of their fellowmen.

Having now absolute proof of a genuine species, male and female, I proceeded to take up some points that I had left in abeyance last year. Among the letters received while searching for *M. gazellula* I had had a very courteous note from Chas. W. Leng, in which he offered to send me his specimens of the beetle for the comparative study I had been minded to make of these two Dromios. Since that letter of his in 1916 I had found that Mr. Leng was as deeply committed as Dr. Hamilton and Prof. Wickham to the heresy that my capture was the male of LeConte and Horn's *M. gazellula*, Hald. In July last I, therefore, wrote to Mr. Leng suggesting that I should send him five or six specimens (male and female) of my capture for him to compare with the material he had labelled *M. gazellula*.

The evidence of these specimens proved quite convincing, and Mr. Leng has prepared a paper called "Microelytus, a Correction." In the course of it occurs a most interesting passage which records how the confusion first arose. It appears that Mr. Leng had in his collection two specimens from Canada labelled *M. gazellula*, and, when comparing notes sometime in the eighties with Dr. Horn, found in the latter's collection two specimens from New England labelled *M. gazellula*; he then noticed that his insect differed from Dr. Horn's in the proportion of its antennal joints 2-4; the beetles were otherwise so entirely alike that neither collector suspected the presence of two distinct species, and both agreed that the Canadian specimens must be males and the New England ones females of *M. gazellula*, Hald. They thereupon exchanged each of them one specimen with the other! And this was the *fons et origo malorum*; to it may be traced the sinking to a synonym of LeConte's *M. gibbulus* from Lake Superior, and the subsequent identification of all captures made of either insect as *M. gazellula*, Hald., male and female.

In September last I sent some pairs of my capture to Mr. Charles Liebeck, of Philadelphia, and he is still at work on the evidence. Meantime he has made me two communications which serve to support the contention made. *First*, that we have unquestionably two quite distinct species to deal with, and that he has never before seen two insects so essentially different correspond so closely in elytral markings and external appearance; and *second*, that he believes he has put his finger on the very source of the whole error, for in Dr. Horn's collection he finds the specimens labelled *M. gazellula*, Hald., male and female, are one of them my insect and the other LeConte and Horn's. This, fortunately, is quite independent testimony, for Mr. Leng's paper is still unpublished, and I had made no mention of its contents in writing to Philadelphia.

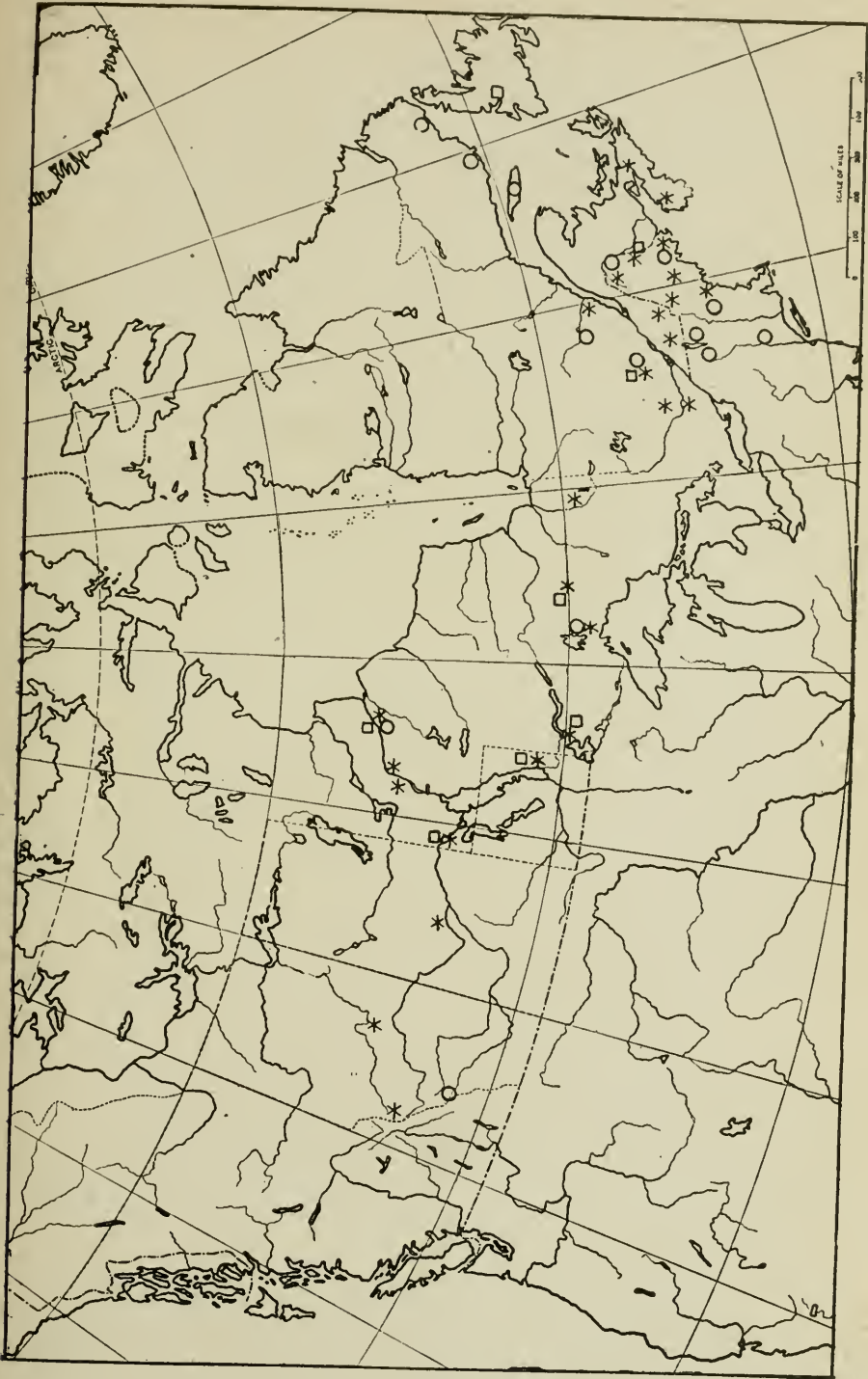
TRANSCANADIAN SPIDERS.

J. H. EMERTON, BOSTON, MASS.

About the year 1890, Mr. J. B. Tyrrell, who was fresh from exploration in the north of Canada, sent me a little collection of spiders. About the same time, Mr. Bean, who kept the telegraph office at the Canadian Pacific Railway Station at Laggan, was collecting insects through the mountains, and incidentally spiders, and he sent me some for identification, so I wrote a paper on Canadian spiders, which was published in 1894 by the Connecticut Academy. Many of these spiders were from the western part of Canada, and nearly all were of species known in the east, but at that time hardly anything was known about their distribution across the continent. Among the species collected by Bean was one since known by the name of *Linyphia nearctica*, which was described in the 1894 paper and not noticed again until fourteen years later, when for the first time I went to the top of Mt. Mansfield, in Vermont, near Lake Champlain, and there found it abundant in the dwarf spruce trees. Going down the mountain it ceased to be found a thousand feet below the summit. Within a few years this species was found on the tops of several of the New England mountains from an elevation of 2,500 feet up to the highest trees. Although I had collected for many years in these mountains, this species had been missed, as my time had been spent either in the valleys or on the top above the trees, neglecting the upper edge of the forest. A few years later *Linyphia nearctica* was found on the coast of Maine, and soon after in bogs, through the northern part of that State, in association with *Theridion zelotypum* which had long been known as far south as Portland and no farther. These two species seemed to have such definite limits, and to be so easily found when they were present, that I was interested in following out their distribution, and so was led to transcanadian spiders in general.

In 1914 I went to the meeting of the Canadian Alpine Club in the Rocky Mountains, and returned east by a roundabout way to see the country north of the Saskatchewan River. In Jasper Park I was surprised to find, in company with distinctly western species, my old acquaintance of down east, *Theridion zelotypum*, living in the small spruce trees in the usual coarse cobwebs and cup-shaped nests. At Athabasca Landing I found it again, and also at Prince Albert. Discussing these finds among my friends led to the discovery of *Theridion zelotypum* by Mr. Waugh, at Nipigon and Manitoulin Island, and *Linyphia nearctica* by Messrs. Townsend and St. John on the southern coast of Labrador. Much of the seasons of 1915 and 1916 was spent in trying to define the southern limits of *Theridion zelotypum* between the White Mountains and the St. Lawrence River. It appears not to go into the White Mountains nor the Adirondacks, but is abundant around the head waters of the Connecticut River and the Rangeley Lakes. In Dixville Notch it is associated with *Linyphia nearctica* at an elevation of 1,800 feet. Westward it occurs at the southern end of Lake Megantic, at Sherbrooke, Montreal, and Ottawa.

Last summer I followed these two spiders along the edge of the Hudson Bay bog, at Cochrane, Minaki and Lake Winnipeg to Le Pas and down the Hudson Bay Railway as far as it is finished. *Theridion zelotypum* was abundant at all these stations and conspicuously absent from the prairie country around Winnipeg and Dauphin; *Linyphia nearctica* only appeared at Kettle Rapids, the most northern station. The spots on the map show the stations of these two species, the *Theridion* in stars and the *Linyphia* in circles, and they form on their southern



border a fairly definite line by which the distribution of other species can be measured. The squares show the stations of *Linyphia limitanea*. This was first found on the Aroostook River, near the boundary between Maine and New Brunswick, and at the same time in Newfoundland. It follows westward nearly the same distribution as *Theridion zelotypum*, but does not come quite as far south. To avoid complication these three species are the only ones plotted. *Theridion montanum* covers the southern part of the range of *Theridion zelotypum* and extends farther south but not as far north. It goes into the New England mountains, but is not confined to high elevations like *Linyphia nearctica*, but comes down a thousand feet lower into valleys like the Crawford Notch.

All the spiders which have been mentioned make cobwebs and live in trees, preferably in spruce, and with them follow several other tree species of similar habits, but less definite distribution, *Lophocarenum decemoculatum* and *Grammonata pictilis* being the most constant.

On the ground under and near these trees wherever there is an accumulation of leaf mould or moss, other than sphagnum, lives another group of spiders apparently as regular in their distribution. *Theridion sexpunctatum* is one of these and extends from the coast of Maine to Vancouver. With it are *Pedanostethus fusca*, *Bathyphantes alpina*, *Tmeticus montanus*, *Tmeticus armatus*, *Tmeticus bidentatus*, *Cryphæa montana* and *Amaurobius borealis*. The recent Canadian Arctic expedition has brought back two minute spiders, *Tmeticus brunneus* and *Microneta crassimanus* from Nome, Alaska, both of which are rarely found in the upper forest of Mt. Washington, N.H.

Beside the spiders living in trees and in the moss there are some species living on the ground that follow the same distribution. *Lycosa albohastata*, a brilliantly coloured hunting spider, lives at Hopedale and Battle Harbor, Labrador, on islands off the coast of Maine, above the trees in the White Mountains, at Kettle Rapids in the Hudson Bay bog, and on Sulphur Mountain at Banff.

The southern limits of the spiders we have been reviewing correspond roughly with the southern limits of the spruce forest area; their northern limits are yet to be defined. Over the whole forest area and north, and to some extent south of it, range several species of *Lycosidæ* from Labrador to the Pacific coast and from Greenland to the mountains of Colorado. The most diffuse of these is perhaps *Pardosa glacialis*. It is found on both sides of Greenland, along the Labrador coast and south as far as Massachusetts, and at various localities across the continent. The recent Arctic expedition brought it from Coronation Gulf and Nome, Alaska, and it is on all the mountains east and west. *Pardosa groenlandica* is almost as widespread. It comes down the east coast as far as Portland, Maine, and is on the Pacific coast and all high mountain tops. *Pardosa luteola* lives in bogs and on mountain tops across the Continent, and *P. uncata* and *P. tachypoda* in all kinds of country, at a little lower level all the way across.

South of the coniferous forest many of the spiders of the plains and hardwood forest extend across the continent, among them several of the large Epeiridæ, *Epeira trifolium*, *marmorea*, *angulata* and *patagiata*, and of course the introduced house species.

Most of the transcontinental spiders extend to the eastern mountains or sea-coast, where they were first known, but a few species cross part of the way from the west. *Epeira gemma* of California comes east as far as Medicine Hat. *Epeira aculeata* and *Sittacus rainieri* of the western mountains were found this summer along the Hudson Bay Railway in the same places as the rare *Habrocestum* (*Euophrys*) *cruciatum* and *Dendryphantes montanus* of the White Mountains.

A FURTHER REPORT ON THE VALUE OF DUSTING VERSUS SPRAYING TO CONTROL FRUIT TREE INSECTS AND FUNGUS DISEASES.

LAWSON CAESAR, GUELPH.

At our last annual meeting I gave an account of my experience in 1916 in dusting fruit trees with fine sulphur and arsenate of lead dust compared with spraying with the liquid lime-sulphur and arsenate of lead. This year I again carried out a similar series of experiments.

Before giving my results for this year, it is perhaps wise to mention that this new dust treatment has aroused a great amount of interest among fruit growers and that they are anxiously waiting for definite knowledge as to its merits. Hundreds of machines would be purchased at once if it were certain that dusting were as satisfactory and reliable as spraying. The reasons for this are as follows: (1) Dusting requires only about one-tenth the time in the case of large trees that spraying requires. For instance, the total time for spraying a large 20-acre orchard in any one season would be about three weeks, whereas the time for dusting would be not more than three days. This would be a wonderful boon, especially when labour is so scarce and costly, and when other important work such as cultivation of soil is pressing. (2) Dusting can be done at almost exactly the right time, which of course it is the duty of entomologists and plant pathologists to determine. This means, for example, that one need never fail with dust to treat his trees for Codling Moth before the calyces have closed. With liquid spray it is often impossible in warm, good growing weather to do this. This promptness of application is just as important for Apple Scab and enables the grower to wait until the blossoms or leaves are in just the right stage and yet make sure all will be treated before they are too far advanced. (3) The outfit for dusting is not so heavy as a power spray outfit and will go through wet ground where the latter would mire. (4) Dusting is not nearly so dirty a job or so hard on clothes, face and hands or on horses and harness. It is true that at times it is hard on the eyes, but this can be largely prevented by proper goggles and in any case it is soon over and done with. (5) There is no time spent in returning for fresh material and no time worth speaking of lost in refilling.

With all these advantages it is no wonder that the fruit grower hopes dusting will take the place of spraying, though we may be sure he will ask about the comparative cost.

COMPARATIVE COST OF DUSTING VS. SPRAYING.

We have not so accurate figures on the cost this year of dusting versus spraying, but they lead to the same conclusion as last year's, namely, that on large trees there is very little difference in cost between the two systems, whereas on smaller trees the liquid is considerably cheaper, though much will always depend upon the operator, as a careless man will be much more likely to waste dust than liquid.

SOME CHANGES IN METHODS OF APPLYING THE DUST AND IN THE MATERIAL ITSELF.

We used the same outfit this year as last, namely, the largest outfit sold by the Niagara Brand Spray Co. For grapes we added a short elbow to the pipe with a long opening facing towards the side so that the dust could be driven in at right angles or nearly so.

The materials this year differed chiefly in the fact that finely ground talc was added partly to act as a filler to the sulphur and lead or to the sulphur when used without the lead, and partly to keep it drier. Very fine sulphur alone tends to be sticky and will not scatter well.

The weather for the most part this spring was not calm enough to enable us to dust both sides of the trees on the same day by driving parallel with the wind and shooting the dust in at right angles; hence we were forced to dust at least one side directly with the wind. The fact is I adopted the method of dusting from at least three sides, or if changes of wind permitted it, from four sides, but lessened the quantity in each case, so that the total for each large tree would still remain approximately three pounds.

ACREAGE COVERED PER DAY.

We never had a chance to test how much one man could do per day, but unless he became too tired he could probably cover at least twenty acres. We may say here that dusting is far from easy and many men cannot do it at all satisfactorily because they move their hands too slowly. There is need of special training for this work and the selection of a man who is not only quick with his hands but has also good judgment and intelligence.

TESTS ON LARGE APPLE TREES.

Two orchards, which we shall call A and B, situated about three miles apart, both of which had been poorly treated the previous year and had borne almost unmarketable fruit, were chosen for the tests. Orchard A consisted of 262 trees and was about 7 acres in extent. Orchard B included about 9 acres but we treated only about 6 acres or about 200 trees.

In each orchard a block consisting of approximately one-quarter of the total number of trees was treated throughout with lime-sulphur and arsenate of lead. The remaining three-quarters of each orchard being moderately infested with San José Scale, received first a dormant or semi-dormant spray with lime-sulphur to kill the scale. Four rows, however, in each were dusted with sodium sulphide powder as a special test for scale. These trees as well as the remainder of the block in the later applications received only the sulphur-arsenate-of-lead dust. In orchard B only two dustings were given, the first just as the blossoms were ready to burst and the other just after the blossoms fell but before the calyces closed. In orchard A all the dust block received these same two applications, but fifty-three trees received an extra dusting on July 4th, three weeks after the blossoms had fallen. The object of this application was partly to see the effect on scab or sooty fungus, but chiefly to see how it affected Codling Moth.

RESULTS ON FOLIAGE.

All the foliage was excellent this year, though that on the dusted area was a little better than on the sprayed, being in fact almost perfect.

RESULTS ON APPLE SCAB.

Orchard A had a crop of approximately 200 barrels fairly well distributed. The chief varieties were Greening, Baldwin and Golden Russet, but there were also a few barrels of Spy and in the dusted area one heavily laden tree of Snow. In

both liquid and dust portions on all varieties even on Snow there was less than 1 per cent. scab. A Snow tree in a neighbouring orchard across the fence had over 90 per cent. of scab, and Baldwins and Greenings in it averaged about 50 per cent. scab. These trees had received only the dormant spray for scale.

The part of orchard A that received only two dustings in addition to the dormant spray were just as free from scab as the part that had received three, thus showing the third application was not required for scab this year. This was generally true in most of the Province. In orchard B the liquid portion had not more than 1 per cent. scab. The dusted part varied greatly, some trees being almost totally free while others of the same variety had as high as 15 per cent. scab. The varieties were chiefly Greening and Baldwin. The average of scabby fruit would not be more than 10 per cent. The crop was very light, only about twenty barrels on six acres, so that the test was not a good one. About three acres of the orchard not in our blocks had received the dormant spray and part of the pre-blossom spray. This part showed from 20 per cent. to 80 per cent. scab.

RESULTS ON SOOTY FUNGUS.

There was practically no Sooty Fungus even in unsprayed orchards in the district.

RESULTS ON CODLING MOTH.

Codling Moth this year almost all over the Province was exceptionally abundant and caused more than the usual percentage of wormy fruit. This was partly due to the smallness of the crop with the consequent greater number of larvæ attacking the individual apples than if there had been a larger crop and more apples for the worms to distribute themselves among.

In orchard B where no later spraying or dusting than the regular calyx application was done, fully 50 per cent. of Baldwins and Kings were wormy, and about 25 per cent. of R. I. Greenings. There was very little or no difference in the efficiency of the dust compared with the liquid. Almost every worm in each case had entered through the side. On unsprayed trees in the same orchard the percentage of wormy fruits varied from 60 to 90, and of these 50 per cent. or more entered by the calyx.

In orchard A the dust gave just as good results as the liquid where both parts received only the one application for Codling Moth, but both were quite wormy, having as high as 30 per cent. of the fruit infested. The block of fifty-three trees that had received a second dusting three weeks after the blossoms fell showed a great improvement over the rest and had not more than 10 per cent. wormy fruit.

DUSTING FOR SAN JOSÉ SCALE.

Last year I tried sodium sulphide dust mixed with hydrated lime upon large apple trees before the buds burst as a method of killing San José Scale. The work owing to certain difficulties was poorly done and the results not satisfactory.

This year I planned to dust four rows of trees, forty-eight trees in each case, with sodium sulphide mixed with talc. Several trees in each plot were badly infested. In orchard B both sides of the trees were dusted, dusting of one side being just after a rain, but the other when the trees were dry. Parts of both sides were re-touched. In all about five pounds per tree were used, so that the mixture was given a good chance.

In orchard A the weather during our work was continuously dry, and after dusting one side of the trees I felt so certain that the mixture would not kill the scale that I merely applied the remainder of my material to the same side and did the other side very thoroughly with lime-sulphur.

RESULTS. To my great surprise this year no scale was found on either of these plots. The fact is that we made such a cleaning up of the scale in both orchards that only two scales in all were found and these might easily have been introduced by a bird or insect. I am not surprised at the results from the liquid, but I am surprised at those from the sodium sulphide dust. I thought that if the trees were moist one could hope for such results, but from my observations I did not hope for it when the dusting was done on dry trees. The results clearly justify further tests.

RESULTS OBTAINED FROM DUSTING ELSEWHERE IN ONTARIO.

At Guelph, Prof. Crow used the sulphur-arsenate of lead dust on his apple orchard, but failed to control the scab. About 66 per cent. of Snows and 50 per cent. of Spy are scabby, and other susceptible varieties are also dirty. There is very little doubt that with liquid spray he would have succeeded much better.

At Brighton an able fruit grower spent much money on dusting his large orchard and gave more than the regular number of applications, but was much disappointed with the results. Two other equally good growers not far from him treated their orchards with liquid and had beautifully clean fruit, nearly 99 per cent. free from scab. One of these orchards received only three applications in all.

At Whitby about half of the Government demonstration orchard was sprayed with the liquid and the remainder dusted. The results were decidedly in favour of the liquid, though the utmost care was taken to do the dusting well and at the right time, and though extra applications were given in all weather favourable to scab. Dusted Snow trees there had as high as 50 per cent. scab.

CONCLUSIONS REGARDING THE MERITS OF DUST FOR APPLE ORCHARDS.

In spite of the excellent results I obtained last year and again this year, I fear very greatly that it will be much safer to continue to use the liquid spray at least for a number of years longer until improved dust substitutes or improved machinery or both are available, and until a larger percentage of those who test it can obtain satisfactory results. A duster could, of course, on a large fruit farm help to tide over an emergency where an extra treatment must be given quickly. The great weakness of the dust method in my opinion is its failing to adhere sufficiently long in wet weather to the fruit and foliage.

A VALUABLE FIELD OTHER THAN APPLE ORCHARDS FOR THE USE OF DUST.

Our experiments in two excellent sweet cherry orchards, each consisting of about ninety large trees of several varieties, has shown a very valuable use for dust. Everyone who knows much about sweet cherries knows that it is very difficult, especially in warm, moist weather, to keep the crop from being ruined or nearly ruined by the Brown Rot fungus. The trouble hitherto has been that while liquid spraying either with lime-sulphur or Bordeaux mixture would ward off this disease as long as the mixture remained on the fruit, these substances could not be applied near enough to the time of picking to prevent rot attacking the fruit then, because they would stain the fruit so much that it could not be marketed.

The sulphur dust, however, without any poison in it gets over this difficulty, because it does not stain anything. It may, therefore, be applied even a day or two before picking and unless followed by prolonged heavy showers will protect the fruit until it is marketed.

Having thought of this plan we tested it out on the above-mentioned sweet cherry orchards. The fruit was kept clean up to a few days before picking—in one orchard by three well-timed applications of liquid lime-sulphur and in the other by two of these and one dusting. These were followed in both orchards by a thorough dusting one or two days before picking. As a result in one orchard there was less than 1 per cent. of rotten fruit, in fact my assistant placed it at 1/10 of 1 per cent., though a large check tree in a more exposed situation had over 80 per cent. of infected cherries. Moreover, in spite of the weather this year being very favourable for rot and causing great losses to cherry growers, the owner told me that this was the first time in many years he had been able to harvest the fruit off several of the trees that were specially susceptible to the disease.

The other orchard was a little later in maturing its fruit and was subjected to several very heavy rains before it was all picked. These washed the sulphur off the later fruit. Nevertheless all the earlier varieties yielded a very clean crop and it was only on the later varieties that any appreciable amount of loss occurred, though even here there was not much loss. An extra dusting of these trees would have prevented this.

Since the Brown Rot of cherries attacks also plums, it is clear that the same plan could be used of protecting varieties very subject to this disease.

It takes so few minutes to dust 100 cherry trees that a dozen fruit growers could purchase a duster among them and thus make the cost to each very little. The cost of the material, namely, sulphur with ground tale as a filler, in normal times would be \$3.00 or less per 100 pounds, which is less than half the cost when arsenate of lead is added to the sulphur, so that the material would not be very expensive. We feel that the adoption of this method of preventing rot would mean the saving of many thousands of dollars annually to growers of stone fruits.

FATHER LEOPOLD: Have you tried dusting for the control of scab of pears?

PROF. CAESAR: We did not try dusting on any variety of pears subject to scab, and I cannot speak regarding that.

FATHER LEOPOLD: This year for the first time we have sprayed our 65 acres of orchard by dusting instead of with liquid spray. The liquid spray machine we had before was burnt in the fire. For apples we had a marvellous success all along, but we had the worst and most scabby pears I have ever seen in my life. We had good success last year on pears with lime-sulphur wash. I think the leaves are so glossy that the dust will not stay on, and of course this applies to the fruit also. The leaves and fruit of the apple tree are more hairy, and the dust will stick on better. I may say that we had 85 per cent. clean fruit in the 65 acres of orchard, but the MacIntosh was especially good—95 per cent. clean. We had a loss with Wealthy because they were not properly sprayed. None of the Wealthy apples ever had scab before, but of course this has been an exceptionally bad year. With regard to Codling Moth, wherever two sprays were applied we had very good success. Last year we had over 35 per cent. Codling Moth in our orchard, but this year the orchard was clean and free from Codling Moth to the extent of 90 per cent. We made no liquid sprays at all this season.

MR. PETCH: With regard to the value of spraying against dusting, I do not think it matters very much which you use so long as it is done thoroughly and repeatedly. This year was a very bad year for scab and we dusted and

sprayed, in order that we might test out both methods. The results were 99 per cent. clean fruit on the sprayed portion and 97 per cent. to 98 per cent. on the dusted portion. The sprayed portion received one more spray, i.e., the dormant spray, otherwise the orchards were sprayed as far as possible on the same day, and there was no division at all in the orchards; it was all done in one orchard, side by side, taking 90 trees in each portion. With regard to dusting I have found that a man who has had a little training in dusting will be apt to have better success than a man with a longer training in liquid spraying. It takes a very good man to spray a tree, whereas a man taught for a very short time with a duster can get good results. I have found that a man spraying for several years will sometimes miss branches of certain portions of the tree with the spray, and on those branches there will be scab, but there will not be even one scabby spot in the dusted portion. We sometimes find that a limb or branch has been overlooked on trees with the heaviest crop of apples, and every apple on these limbs will be affected by scab, and of course this means that the apples are put into class 2 or 3. In the dusted portion the dust settles all over the tree, and does not require the careful attention to reach every branch that the spraying does. Professor Caesar may differ from me in this, but that is my experience, and as regards spraying I may say that we have a very good example in an old orchard badly infested with scab which I think was well known to Macdonald College men last year. The man had the cleanest crop of Fameuse in the Province of Quebec, after spraying thoroughly four times. This year he said: "I am not going to get a large crop anyway, and I am not going to bother very much about spraying." He sprayed the Fameuse once and the others he did not spray at all, with the result that there was 88 per cent. scab. Last year he had 98 per cent. clean fruit in a year which was just as bad as this has been for scab. Last year out of 1,050 barrels packed 1,010 were 2's and 3's, but this year although our crop was not so large we had about 97 per cent. clean fruit. I spoke last night about what can be done by reaching the farmers. Some of these men have sprayed ever since the spray has come into the county, and the Demonstration Orchard men have been sent out to them and have stayed with them for years, and yet this year nearly half, or at any rate a quarter, of their apples were No. 3's.

FATHER LEOPOLD: What percentage of fillers did you use? We have been using 60 per cent. to 40 per cent. fillers in our orchards.

MR. PETCH: A mixture of 45 per cent. fillers to obtain these results.

PROF. CAESAR: I think Professor Brittain made some tests with the dust.

PROF. BRITTAIN: We did make some tests this summer, and our results were so very uneven that I find now I do not know nearly as much about the matter as I thought I did in the spring. We used various strengths of sulphur—40 per cent. to 90 per cent.—through the different orchards. The head of the Botanical Branch and I each took over a small orchard for testing purposes, and I may say that he had the better one—an orchard that has been properly looked after for years, one of the best sprayed orchards in the district, on light sandy land, with splendid air drainage, and with trees well pruned. I took one on heavy clay land, with poor air drainage and poorly pruned trees. He had good results, fruit over 90 per cent. clean, and found with regard to dusting that he had better control with 95 per cent.-90 per cent. than with 50 per cent. With spraying he got slightly better results than with any of the dusts, but on the best dusted fruit the difference was negligible. My orchard had 40 per cent. scab and the worst outbreak of Tussock Moth I have ever known. The Tussock Moth

chewed holes in both sprayed and unsprayed portions. My dusted fruits were 90 per cent. scabby, and the cheek was 100 per cent. scabby. Did Prof. Caesar ever try tobacco dust?

PROF. CAESAR: Not that we could call a fair test and draw conclusions from.

PROF. BRITAIN: I was very disappointed. A man in New York State assured me that it was a very efficient control for aphids. Green Apple Bugs were present in large numbers and we tried it, with the result that the Green Apple Bugs were chasing themselves around the tree just as lively as ever, and we had only one casualty in the whole tree.

FATHER LEOPOLD: How many times did you apply the dust?

PROF. BRITAIN: Four times.

PROF. CAESAR: Perhaps Prof. Bunting can tell us something about this.

PROF. BUNTING: No. I may say, however, that I think it would be well for fruit growers to go cautiously at the present time with dust spraying. There seems to be a big difference of opinion amongst men who have been experimenting with both. We know that the liquid spray is very effective and a satisfactory control for most of our orchard pests. Someone has described an ideal spray as one that can be applied with the least inconvenience, in the shortest space of time, will control the largest number of pests for the longest possible season. No doubt dusting machines have done good service, but the fruit grower must have a dust machine and also a liquid machine to spray an orchard at the present time. I think it would be wise for the average orchardist to go cautiously in adopting the dusting machine.

PROF. CAESAR: Where the same man did the work in an orchard at Whitby the liquid spray gave much better results than dusting. I do not advocate the purchase of a dust sprayer for the average fruit grower.

A FEW NOTES ON THE ECOLOGY OF INSECTS.

W. LOCHHEAD, MACDONALD COLLEGE, P.Q.

In its broad aspect the ecology of insects deals with these animals in relation to their environment. It is evident, therefore, that a short paper such as this cannot discuss adequately the whole field of relations between insects and their environment, for this would require volumes. The object of this paper, however, is to touch briefly upon a few aspects of the subject with the hope that more attention may be given to the study of the problems involved to the end that they may help in solving some of the problems relating to the control of injurious insects.

INTER-RELATIONS BETWEEN INSECTS AND PLANTS.

Long continued observations show that there are "all grades of association between plants and insects from most casual contact to mutual dependence, and that there are grades of fitness on both sides." (Needham, *General Biology*.) The important part played by many insects in the fertilization of plants is well known. To this end many beautiful adaptations occur among plants such as in legumes, iris, milkweed, yucca, orchids, mints, figworts, honeysuckles, canna, Smyrna fig, etc., but it should be borne in mind that there has been also much adaptation on the part of the insects.

Another type of inter-relation is the *galls* seen on many plants, produced by certain insects. The chief gall-producing families are the *Cecidomyiidae*, *Trypetidae*, *Aphididae*, *Psyllidae*, *Cynipidae* and *Tenthredinidae*. Mites (*Acarina*) also produce galls. Usually an egg is laid the growing tissue and the larva excites the surrounding tissue to abnormal growth. The transformations occur within the gall, and the adult escapes.

Galls are of various forms, often characteristic of the insects producing them. The nutritive cells lying next to the contained larva contain both sugar and starch and appear to function as feeders for both the larva and the growing cells of the gall, as our fellow-member Dr. Cosens has most admirably shown in his recent studies.

Insectivorous Plants.

Certain plants such as the sundew, Venus's fly-trap, pitcher-plant and bladder-wort entrap small insects and feed upon them. These plants secrete digestive fluids which convert the tissues of the captured insects into liquid food capable of being absorbed.

Bacteria and Fungi.

Many caterpillars die from bacterial diseases. Silk-worms, cabbage worms, army worms, gypsy moth caterpillars, grasshoppers and tent caterpillars are frequently killed by bacteria. Certain fungi also destroy insects. *Cordyceps* destroys white grubs, wireworms and many caterpillars; *Empusa* is often responsible for the destruction of house flies, plant lice, grasshoppers, crickets and caterpillars; and *Sporotrichum* kills many kinds of insects. Attempts have been made to control chinch-bugs and grasshoppers by artificial cultures of *Sporotrichum* and *Coccobacillus*, but only with partial success.

INSECTS AS CARRIERS OF PLANT DISEASES.

Flea-beetles by eating holes in the leaves of potato permit the entrance of the spores of Early Blight (*Macrosporium solani*) and consequent partial destruction of the leaves. It has also been shown fairly conclusively that certain aphids and other insects* act as carriers of Twig Blight (*Bacillus amylovorus*) of apples and pears, and it is now believed that the Squash-bug (*Anasa tristis*) the Striped Cucumber Beetle (*Diabrotica vittata*), the Twelve-spotted Cucumber Beetle (*D. 12-punctata*), the Cucumber Flea Beetle (*Epitrix cucumeris*), the Melon aphid (*Aphis gossypii*), and the 12-spotted Ladybeetle (*Epilachna borealis*) frequently inoculate the stems of cucurbits with the cucurbit wilt (*Bacillus tracheiphilus*). Again, the punctures made by the Plum curculio in plum, cherry, and peach permit the entrance of the spores of the Brown Rot disease (*Sclerotinia fructigema*). Tree crickets (*Oecanthus* spp.) are said to be responsible for the inoculation of trees and shrubs with canker, of raspberries with the Cane Blight, and probably for the production of other diseases.

Inter-relations of Plants and Insects in Nature.

The idea of inter-relations in Nature was first emphasized by Sprengel, Darwin and Müllér, and later ecological studies reveal still more clearly how

*Gossard mentions among others *Aphis avenae*, *Empoasca mali*, *Eccoptogaster rugulosus*, and *Lygus pratensis*. "Any sucking insect can become a carrier, also any insect with the bark-burrowing habit."

all Nature is linked together into a system, one part dependent upon another in an intricate web of life. Disturbances in one portion of the system are followed by disturbances in another. We have already indicated in previous sections some of the relations between insects and plants, between insects and birds, and between insects and their parasites. Numerous other relations might be mentioned but these are sufficient to show that a knowledge of these relations is an important part of the equipment of the economic entomologist who would deal successfully with the problems confronting him.

In a region undisturbed by man the various parts of the system of Nature have practically reached a state of balance through the ceaseless action for long ages of the "struggle for existence." Plant struggles with plant, animal with animal, and both with the environment. With the advent of man, however, the balance has been disturbed by the clearing of the forests, the cultivation and drainage of the land, the growing of crops, and the introduction of foreign plants and animals, since the new set of conditions will be favorable to the increase in numbers of certain plants and animals, including insects, and unfavorable to others. This disturbance is often widespread. Favored insects will multiply rapidly on account of the abundant supply of food furnished by the cultivated crops, faster at first than their parasitic enemies; and insectivorous animals such as snakes, toads, birds and predaceous insects will be deprived of the necessary shelter and hiding places by the clearing of the land, and become less abundant.

On the other hand insects not favored by the destruction of their food plants under the new conditions will diminish in numbers, as will also their parasites, both sometimes no doubt to the verge of extinction. If, however, as is sometimes the case, conditions again favor the insect it will multiply very rapidly because the development of the parasite lags behind its host. Moreover, there is always a limit to the increase of the parasite, otherwise it would exterminate its host, and eventually itself.

Again, the development of insects is sometimes influenced by the soil conditions. For example, sandy or gravelly soils seem to favor the multiplication of such insects as the plum curculio, and the grape root worms. But another factor, namely, the influence of the soil on the plant, must not be overlooked. Plant growth on sandy and gravelly soils is retarded and is to a certain extent abnormal, and the plant is less resistant to attacks of insects. On the other hand, strong rich soils may induce vigorous growth, also to a certain extent abnormal, when the plant is preyed upon by certain insects like plant lice and scale insects which thrive best upon succulent growth.

This relationship of soil insects to climate and soil conditions has been recently discussed in the *Agricultural Gazette* by Dr. A. E. Cameron, of the Entomological Branch, Ottawa, who is attempting to get some definite information out of the chaos of many apparently conflicting observations, a condition due mainly to the imperfect determination of the measure of the operation of many factors. He finds that phytophagous insects of the soil frequent those soils where their food plants thrive, but as these plants depend on the type of soil—its structure, texture and composition, temperature and humidity, it is clear that these insects depend on the type of soil.

Again, predaceous soil forms are dependent on the presence of phytophagous soil forms, and a change in any one of the factors constituting a habitat will have an influence on the fauna.

As a physical index of the varied conditions controlling soil insects it is believed that the evaporating power of air is the most important one, inasmuch

as it is an expression of the combined effects of air, temperature, pressure, humidity, wind velocity.

This whole subject requires much additional study.

The inter-relations of plants and insects become more involved when it is known that certain varieties and species of economic plants are more liable to attack by insects than other varieties and species. Treherne in a recent article in the *Agricultural Gazette of Canada* brings forward some instances of this kind. Spring wheat in certain localities in British Columbia is severely troubled with the wheat midge, while fall wheat is seldom attacked. But he notes that the early and late sowings of the spring wheat are not so seriously injured as the mid-season sowing. Again, the grape-blossom midge injures the early varieties of grapes, such as Morris Early, Warden, Champion and Massasoit, more than the Concord. In the serious invasion of the Hessian Fly in Ontario in 1900-01 the writer observed that certain varieties of wheat were injured more than others. The Imperial, Egyptian and Michigan Ambers, Walker's Reliable and General Grant, were but slightly infested, while Dawson's Golden Chaff, Turkey Red, Treadwell and Red Chaff were badly affected. At the same time it was observed that the Dawson's Golden Chaff was not seriously attacked in New York State.

Treherne also notes that the Northern Spy apple is practically immune from the woolly aphis, the Leconte and Kieffer pears from the San José scale, black currants and lettuce from *Peridromia saucia* cut-worm, and the red Dutch cabbages from the cabbage root maggot. In addition, he says: "The forest tent caterpillar (*M. disstria*) attacks sugar maple in preference to the soft maple, the latter being comparatively free from attack. He also records the fact that the spiny elm caterpillar (*Euvanessa antiopa*) rather seriously injures American elms, while Scotch and English elms are not preferred. Similarly, the maple scale (*Pulvinaria innumerabilis*) rarely injures the sugar and Norway maples, but attacks especially the soft maples. Dr. Felt has further rated various shade trees in New York in their order of susceptibility or immunity from attack by insects. The European elm sawfly (*Kaliosysphinga ulmi*) attacks the English and Scotch elms, including the Camperdown variety, in preference to the American elms (Slingerland, Cornell). The elm leaf beetle (*Galerucella luteola*) is reported as most seriously infesting the European elm and when other species of elm were found growing nearby preference seemed to be shown for it (Burgess, Illinois). The European elm scale (*Gossyparia spuria*) attacks the American elms more seriously than the imported English elms. (Doten, Nevada.) The fruit-tree bark beetle (*Euzophera semifuneralis*) clearly prefers the European or imported varieties of plum, but does occur in the native kinds; *Prunus simoni* has, however, thus far been worst affected by it. (Sanderson, Delaware). The white peach scale (*Diaspis pentagona*) a very polyphagous feeder, does not attack the Le Conte and Kieffer pears. (Gossard, Florida). The apple maggot (*Rhagoletis pomonella*) is noted particularly in the sweet and sub-acid summer varieties, while fall and winter sorts, including acid varieties are less infested. (Quaintance, U. S. Bureau.) The brown mite (*Bryobia pratensis*) is seldom observed on quince and apricot, although it attacks a great variety of trees including almonds and peaches. (Weldon, Colorado). The use of resistant vines against the grape phylloxera represents a good example of the value of selection. The wild vines of the Mississippi Valley states which have evolved in company with the *Phylloxera* possess the more resistant forms. The European vine (*V. vinifera*) is the most susceptible of all in California. (Quayle, California.)"

INSECTS AND BIRDS.

When it is known that about two-thirds of the food of our common birds consists of insects, it becomes evident that the agency of birds in the control of insects is of the highest importance. The seasonal diet of the robin, blue bird, catbird, king-bird, flycatchers, chickadee, wren, swallow, woodpecker, cuckoo, night-hawk, warblers, oriole, and the other birds has been carefully studied in recent years, with the resulting discovery that insects form in most cases their only food, and only at certain seasons are small fruits eaten.

Birds are no doubt of special value to the farmer in nipping incipient scourges in the bud on account of their ability to move rapidly from place to place in search of food, and on account of their varied character and habits. Especially is this true of our winter birds which search every cranny and nook for the hibernating forms of insects at a season when every form destroyed means in most cases the absence of hundreds of thousands of their progeny the following summer.

INSECT BEHAVIOR TOWARD STIMULI.

In recent years a large mass of facts regarding the behavior of insects to their environment—both organic and inorganic—has been accumulated, and in a few cases this information has been of service in the control of injurious forms. In general, however, the application of such methods of control is still in its infancy stage, but it gives promise of valuable results in the near future.

As the relations of insects to plants and to other insects have been discussed in previous sections, attention will be confined here to the behavior of insects under the influence of environmental stimuli such as light, heat, moisture, chemical contact, winds, etc.

For some time it has been known that plants show tropistic movements with regard to light, heat, gravity, moisture, contact, etc. Moreover, some progress has been made towards an understanding of the processes. Plants, for example, bend towards the light because the cells on the side away from the light grow faster than those on the side next the light. There is no conscious control of the movement by the plant. Animals, too, exhibit movements under the influence of tropic, or rather, taxic stimuli. In the case of insects, butterflies, bees, house flies, and many moths and caterpillars are positively phototropic or phototactic, and move towards the light, while maggots, bed bugs and cockroaches move away from the light.

Again, most moths move away from sunlight but move towards a lesser light such as electric or oil lamps. Davenport explains this difference by saying that "butterflies are attuned to a high intensity of light, moths to a low intensity." Loeb explains the circling of moths and other insects about a light. The stimulus orients the insect by its more intense action on the muscles next the light, and the insect then moves towards the light.

Loeb states that caterpillars of the Brown-tail Moth as they emerge from hibernation in spring are positively phototaxic, but after they have eaten this response disappears, showing that taxic reactions are sometimes dependent on the state of the body.

"Swaine finds that the destruction of piled logs by the wood-boring larvæ of the sun-loving *Monohammus* can be prevented by forming a dense shade over the logs by means of brush. In his study of the army cut-worm (*Euxoa auxiliaris*) in Alberta, Strickland found that the larvæ are negatively phototropic and hide

beneath the soil till about four or five o'clock in the afternoon when they come to the surface to feed. With the weaker light they become positively phototropic and a general migration in a westerly direction takes place. When food is scarce hunger may overcome their aversion to sunshine with the result that the larvæ come above ground, but they still display a modified negative phototropism and migrate in a north-westerly direction. These facts are of practical value in controlling outbreaks of this insect." (Hewitt.)

Insects are very responsive to the stimulus of heat, i.e., they are thermotactic. Some insects respond to the stimulus of touch or contact, and are said to be either positively or negatively thigmotactic. Cockroaches are in the habit of squeezing into narrow crevices, and Loeb mentions the case of a moth (*Pyrophila*) which also has the same habit.

Chemical substances and foods also act as stimuli influencing the movements of insects. Maggots orient themselves with regard to their food and then move towards it, the orientation being the result of unequal chemical stimulation of the muscles of the two sides of the body. The deposition of eggs by most insects on certain plants is also the result of chemotropism. The house fly and many piercing insects such as the biting flies and mosquitoes are repelled by phenol and other coal tar products.

Wheeler and Loeb give several examples of geotropism among insects. They observed that lady-birds and cockroaches at rest placed themselves on vertical rather than horizontal surfaces.

Observations show that taxic* reactions are very adaptive. Ants and aphids are positively phototaxic when they get wings; and honey bees are periodically phototaxic, thus leading to swarming. Ants, moreover, are strongly thermotaxic, thus securing for their brood the optimum temperature conditions.

RELATION OF INSECTS TO TEMPERATURE AND HUMIDITY.

Two important factors influencing the life of insects are temperature and humidity. Their general regulatory action has been known for a long time, but scientific data obtained in recent years enable us to speak more definitely regarding the behavior of insects toward the varying temperature and humidity of their environment.

Pierce in his studies of the Cotton Boll Weevil and other forms says: "A careful study of the records of any species, charting for the time required for each activity and the temperature and then similarly for the humidity will disclose temperature and humidity points of maximum efficiency. With the Boll Weevil these points lie approximately near 83 deg. F. and 65 per cent. relative humidity."

Ewing has found that a constant temperature of 90 deg. F. prevents the development of *Aphis avenæ*, and that the optimum temperature for the production of the wingless agamic forms is about 65 deg. F. The larvæ of the common House Fly are killed at a temperature of 105 deg. F., and the close-packing of manure is sufficient to prevent the breeding of flies.

With regard to changes in humidity insects vary somewhat widely in their reactions. For example, moist air is favorable to most aphids and hastens the development of the larva of the Hessian Fly. On the other hand dry seasons favor the development of the Chinch Bug and the Wheat Midge.

The investigations of Bachmetjew show that humidity is an important factor modifying the effects of temperature, and that the metabolic activities of insects

*The term *taxic* is now more commonly used than *tropic* when applied to the movements of animals under the action of stimuli just referred to.

are related to both temperature and humidity. He says: "Apparently there is a degree of atmospheric humidity which being the most favorable to the maximum speed of insect metabolism should be designated as the optimum; that this optimum varies for each species, for each stage of each species, and for each stage of each individual.

It is a well-known fact that most species of *Thrips* and Red Spiders are more abundant, and hence more injurious, under warm dry conditions.

The Codling Moth is an example of a common insect whose development is greatly influenced by weather conditions. Even within the limits of a single state or province the rate of its development and the time of its stages are influenced by latitude, by early and late seasons, by cool and warm seasons, and by wet and dry seasons. The student will find in the observations of Simpson in Idaho, Pettit in Michigan, Sanderson in New Hampshire, Caesar in Ontario, Headlee in Kansas, Siegler and Simanton in Maine, Brooks and Blakeslee in Virginia, and Forbes in Illinois much valuable data for investigations on the relation of insects to climatic factors.

FRIDAY AFTERNOON, 1.30 O'CLOCK.

A motion picture film on "Field and Parasite Work on the Gipsy and Brown-tail Moths" was shown by Prof. Burgess in the local moving picture theatre.

The use of this film was obtained by courtesy of the U. S. Bureau of Entomology. It was followed immediately by another excellent film illustrating "Orchard Spraying in Nova Scotia," shown by Prof. W. H. Brittain.

THE EFFECT OF STABLE AND HORN FLY ATTACKS ON MILK PRODUCTION.

A. W. BAKER, O. A. COLLEGE, GUELPH.

At the annual meeting of the Society in 1916 the writer gave a paper on "Some Repellents for Stable and Horn Flies on Cattle." At that time the question was raised as to whether or not fly attacks had any effect on milk production. Accordingly during the summer of 1917 a spraying experiment was carried out with milch cows in an endeavor to find the effect of fly attacks on milk production, or rather the benefit to be derived from a prevention of these attacks.

Two lots of five cows were selected. Unfortunately, one cow aborted during the course of the experiment, so that milk records could be kept of only four cows in one lot. From July 17th to July 31st one lot was sprayed once a day and the other lot left unsprayed. From Aug. 1st to Aug. 12th the lots were reversed in spraying and from Aug. 13th to Aug. 25th the lots were again reversed. In taking the milk records the first two or three days of each period were discarded, leaving 10 days in which the effect on yield was considered.

During the first period and part of the second, the cattle were sprayed before the afternoon milking. During the remainder of the second period and the third period spraying was done before the morning milking.

The following table shows the lots of cows, sprayed and unsprayed, with the milk production of each cow for the last ten days of the period and the total milk production of the lot for the same time.

TABLE OF MILK PRODUCTION.

July 17th—July 31st.				Aug. 1st—Aug. 12th.				Aug. 13th—Aug. 25th.			
Lot.	Cow.	Milk.	Total Milk.	Lot.	Cow.	Milk.	Total Milk.	Lot.	Cow.	Milk.	Total Milk.
Sprayed.	A	Lbs.	Lbs.	B	188	Lbs.	Lbs.	A	6	Lbs.	Lbs.
	7	281.3	1012.8		194	299.8	911.8		7	230.6	880
	10	191.1			193	210.7			10	182.7	
	191	127.6			232	150.7			191	82.6	
	185	263.6			250.6	185			247.3		
		149.2								136.8	
Unsprayed	B	188	972.9	A	6	253.7	911.5	B	188	255.6	788.2
	194	244.7			7	186.7			194	196.0	
	193	141.7			10	85.5			193	129.1	
	232	274.2			191	241.1			232	207.5	
					185	144.5					

It must be borne in mind in examining these figures that there is a normal loss in milk production from the middle of July to the end of August irrespective of fly attacks. This loss is due of course to drying up of pastures and was especially evident in 1917. Under normal conditions this loss is gradual, so that in three periods such as used in this experiment the middle would represent practically an average of the first and last.

An examination of the table of milk production shows us that such an average production during the middle period was not evidenced where the cattle had been sprayed for part of the time.

Lot A during the first period of ten days, sprayed, gave 1,012.8 lbs. of milk, and in the third period of ten days, also sprayed, gave 880 lbs. of milk. During the second, or unsprayed period, the lot, however, gave 911.5 lbs. of milk, which is 35 lbs. or approximately 4 per cent. less than the average of the two sprayed periods.

Lot B during the first period, when unsprayed, gave 972.9 lbs. of milk and in the third period, also unsprayed, gave 788.2 lbs. During the second, or sprayed, period this lot gave 911.8 lbs. of milk, which is 31 lbs., or approximately $3\frac{3}{4}$ per cent. more than the average of the two unsprayed periods.

A comparison of the production of the two lots serves more strikingly to point out the benefit derived from spraying. Lot A containing 5 cows in the first ten days when sprayed produced 40 lbs. more than lot B containing 4 cows unsprayed. In the third period lot A of 5 cows sprayed produced 92 lbs. more than lot B of 4 cows unsprayed. In the second period, however, lot B of 4 cows sprayed produced a fraction of a pound more than lot A of 5 cows unsprayed.

This comparison of the two lots also shows the advantage of morning spraying. Lot A in the first period when sprayed in the afternoon gave only 40 lbs. more than lot B unsprayed, whereas the same cows in the third period, when sprayed in the morning, gave 92 lbs. more than the unsprayed lot. The afternoon spraying was less than 50 per cent. efficient as compared with the morning spraying.

due of course to the fact that the cows had poor protection during the heat of the day, when fly attacks were at their height.

We find that the increased milk production through the use of a repellent in certain periods was approximately 4 per cent. in those periods. However, since the afternoon spraying, which was carried on over considerably more than one-third of the time, was less than 50 per cent. as efficient as the morning spraying it follows that the production during the period when morning spraying was practised must have been increased nearly 6 per cent. I should say in this connection that, due to difficulty in securing assistants for summer work on the department, we were forced for a time to use inexperienced and somewhat incompetent help and I feel that there were times when the spraying was not as thoroughly done as was necessary. Accordingly, we feel that another season's work will give even more marked results.

In considering the increase in milk production through protection of cattle from fly attacks by the use of repellents, it must be borne in mind that this increase in production is secured without any increase in plant, stock or equipment. There is also no increase in overhead save the cost of the spray material, as the time required for spraying is so short that no additional help is required. Two men should spray a herd of thirty cows in 25 to 30 minutes.

The repellent used in this work was a home-made spray mixture, a modification of the repellent described in the paper given at the last annual meeting of the Society.

The ingredients are as follows:—

Kerosene	1 gallon
Slightly sour milk.....	1 "
Fish Oil.....	1 "
Strong hot soap solution (about $\frac{1}{2}$ cake laundry soap) 1	"
Oil of Citronella.....	6 ounces

The kerosene and milk are mixed and thoroughly agitated to form an emulsion; the fish oil and hot soap solution are then mixed and thoroughly agitated and the two emulsions are then mixed and the whole very thoroughly agitated. The 6 ozs. of oil of citronella is stirred in when the mixture is cold. This makes quite a stable stock solution. It is advisable, however, to stir up the stock solution thoroughly each time any is taken out. When not in use the stock solution should be kept covered.

The materials for this four gallons of stock solution cost about \$1.83. In the work outlined here the repellent was used in the proportion of one part of stock solution to two parts of water. The mixture as applied, therefore, cost $15\frac{1}{4}$ cents a gallon. In the proportion of 1 to 2 of water 1 gallon as applied should suffice for one spraying for about forty cows. The cost of the spray material used in the experiment was therefore about 55 cents.

The pump used was a small, cheap hand sprayer of the atomizer type, such as is used for spraying small garden patches.

NOTES ON TWO UNUSUAL GARDEN PESTS IN NOVA SCOTIA.

W. H. BRITAIN, PROVINCIAL ENTOMOLOGIST FOR NOVA SCOTIA.

THE POTATO STEM BORER (*Gortyna micacea* Esp.)

Like so many of our injurious insects this species is evidently introduced from Europe. A short description of the larva is found in Newman's "British Moths." Stainton, in his "Manual of British Butterflies and Moths" Vol. 1, p. 198, states that the larva feeds in the roots of various Cyperaceæ. In "British and European Butterflies and Moths" by Kappel & Kirby, it is said that the larva lives in the roots of *Glyderia spectabilis*, etc. Buckler in his "Larvæ of British Butterflies and Moths" states that the larva feeds on *Equisetum*. He gives the following account of the larva:—

"Larva of *H. micacea*, three-quarters grown, 1 1/16 in. long. The color of the back and sides down to the spiracles was a rather deep purplish red-brown without gloss, and a little paler on the thoracic segments and at the divisions; the sides below the spiracles and belly and the legs were paler and of a dingy flesh color; the head, ochreous brown, the mandibles blackish brown; a polished ochreous brown semi-circular plate on the second segment rather broadly margined in front with blackish brown; a small shining pale ochreous plate on the anal tip, having a terminal border of very small dark warts. At the beginning of July the larva has attained 1¾ in. long, having meanwhile grown paler on the back and by the tenth of the month the upper and lower surfaces were both alike, of a deep smoky dull flesh color. In this case the larva had fed on *Equisetum*, but at this date it ceased feeding and excavated a hole in the earth at the side of its pot; in which by the 15th it emerged to a light ochreous brown pupa ¾ in. long from which the moth emerged in August, 1914."

Miss Omerod publishes an account of certain outbreaks of the insect in potato stems in her report on injurious insects for 1898. One outbreak occurred at Fyvie, Aberdeenshire, Scotland, and reports of similar outbreaks were received from Melton Mowbray and from Daleally, Errol, N.B., but in this case no moth was reared. She states that larvæ sent in July 20th pupated the third week in August and moths appeared the middle of September. This fairly closely approximates the life history of the insect as determined for Nova Scotia. In "Entomological Notes" in the Journal of the Board of Agriculture, Vol. 4, p. 519, there is a brief account of the insect and its work. Grünberg, in "Die Süßwasserfauna Deutschlands," published at Jena in 1910, gives a description of the adult of this insect and discusses the food habits of the larvæ, mentioning *Carex*, *Rumex* and *Iris* as host plants.

The insect was first recorded as occurring in Canada by Mr. Gibson in the 39th Annual Report of this Society, pages 49-51. Mr. Gibson summarizes the literature dealing with the pest and records its discovery at two widely separated points, viz., Westport, N.S., and Tramore, Ont. In both cases the larva was boring in a corn stalk.

The moths have also been taken by Mr. McIntosh at St. John, N.B., who records the insect under the name *Hydroecia medialis*, Smith. The writer records the ravages of the insect in Nova Scotia in a short article published in the Proceedings of the Nova Scotia Entomological Society for 1915, pp. 96 and 97.

No records of complaints of the work of the insect can be found until the summer of 1914, when serious damage was reported to potatoes in gardens at Yarmouth. Specimens of larvæ were obtained and adults reared to maturity from this material. In the same season the rhubarb plantation at the college was visited by a serious attack of this pest which practically destroyed the crop both



Potato Stem Borer (*Gortyna micacea*).

1. Eggs in situ on stem.
2. Larva, side view, enlarged about two times.
3. Pupa, dorsal view, enlarged about two times.
4. Adult enlarged about four times.

that and the following year. In the fall the rhubarb was all taken up and the ground plowed and well cultivated. In 1916 it was planted to cabbage and cauliflowers. In 1917 there was no further appearance of the pest though the land was planted out to potatoes.

During the past summer more complaints reached the office regarding this insect than any other one pest. Never a mail arrived during its active season, that did not bring letters of specimens.

Frequent mention was made in the press regarding this "new potato bug" and accounts of its ravages, often exaggerated, gained wide circulation.

We did not have an opportunity of making any detailed study of the insect, but were able to secure the general outlines of its life history and to observe its injuries. The eggs are laid by the female moth during the latter part of August and in September. They are doubtless laid on various weeds, but we have only found them on couch grass (*Agropyrum repens*) where they are very difficult to detect. They are laid loosely and frequently in rather large numbers, attached to the stem, generally being partially surrounded by the leaf sheath. The eggs, which do not appear to have been noted by other workers, are a little less than one millimeter in diameter, circular in outline, faintly ribbed and slightly tinged with pink.

The larvæ emerge in June and bore a tiny entrance hole in the stem through the centre of which they bore, causing it to wilt and die. In the rhubarb they frequently bore through and through the crown of the plant, but in potatoes and corn they confine their attention to the stalk. The injury continues through the latter part of July and into the early part of August, when the insect transforms to a pupa, to emerge late in August or in September, as an adult moth.

The unusually severe outbreak of this pest during the past year may have been partly due to the great increase in the number of back yard gardens, frequently planted in situations that had formerly been badly overgrown with weeds that would be likely to harbor the pest. The clean cultivation of the plantation during the oviposition period is an obvious step to take. In a permanent plantation, such as rhubarb, this is particularly necessary and in land that is planted continuously in garden crops. Gardens should not be planted on waste land that has been allowed to grow to weeds in previous seasons. Whenever possible such land should be thoroughly plowed and cultivated the previous fall in order to destroy as many eggs as possible. As the insect is chiefly a garden pest, picking the injured stalks and destroying the caterpillars is practicable and should be done to prevent outbreaks in future seasons. It is obviously impossible to attack the insects by means of insecticides.

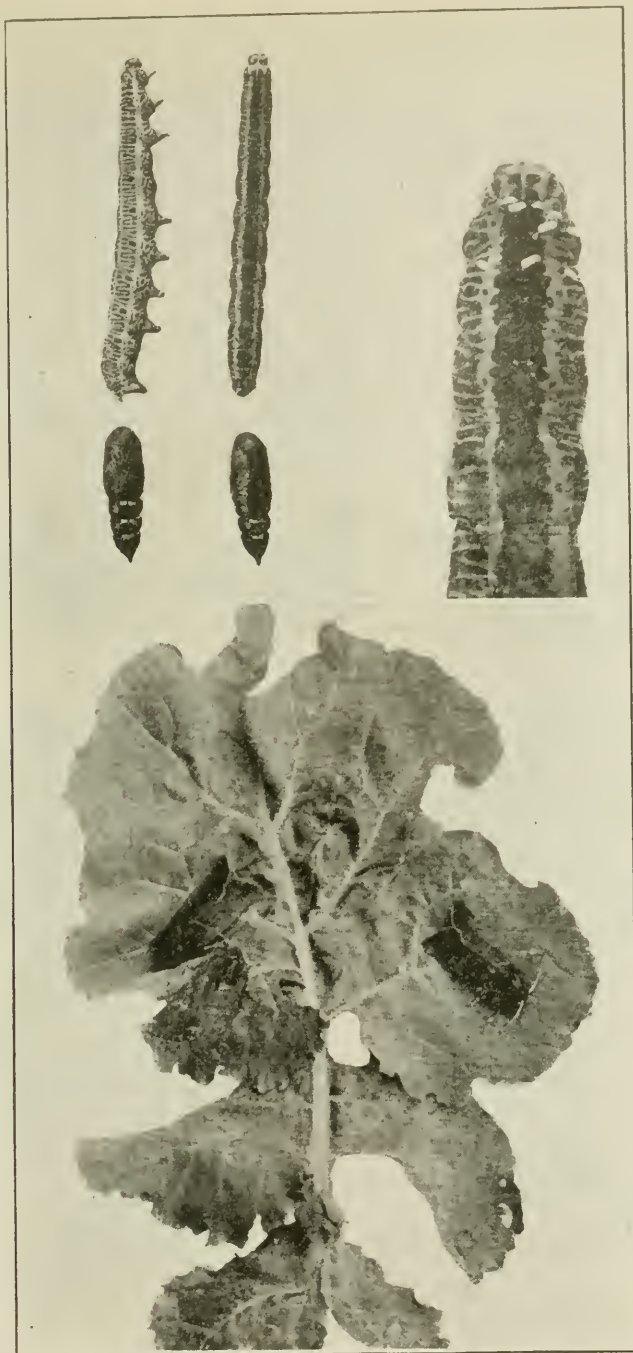
THE ZEBRA CATERPILLAR (*Ceramica picta* Harr.)

Unlike the former species, this is a native insect and occurs intermittently over a wide range in the United States and Canada. I have been able to locate about forty-five references to the work of the insect in American literature, consisting for the most part, of brief notes indicating that the pest is not considered to be one of major importance. Neither Chittenden or Sanderson mention it in their text books. O'Kane gives it a few lines stating that it feeds on garden crops of various sorts, especially beets, spinach, celery and peas.

It is apparent from the references to the insect in entomological literature that, while it cannot be considered an unusual pest, serious outbreaks are a somewhat rare occurrence, at least such outbreaks as have been experienced in the Annapolis Valley during the past two years.

1

2



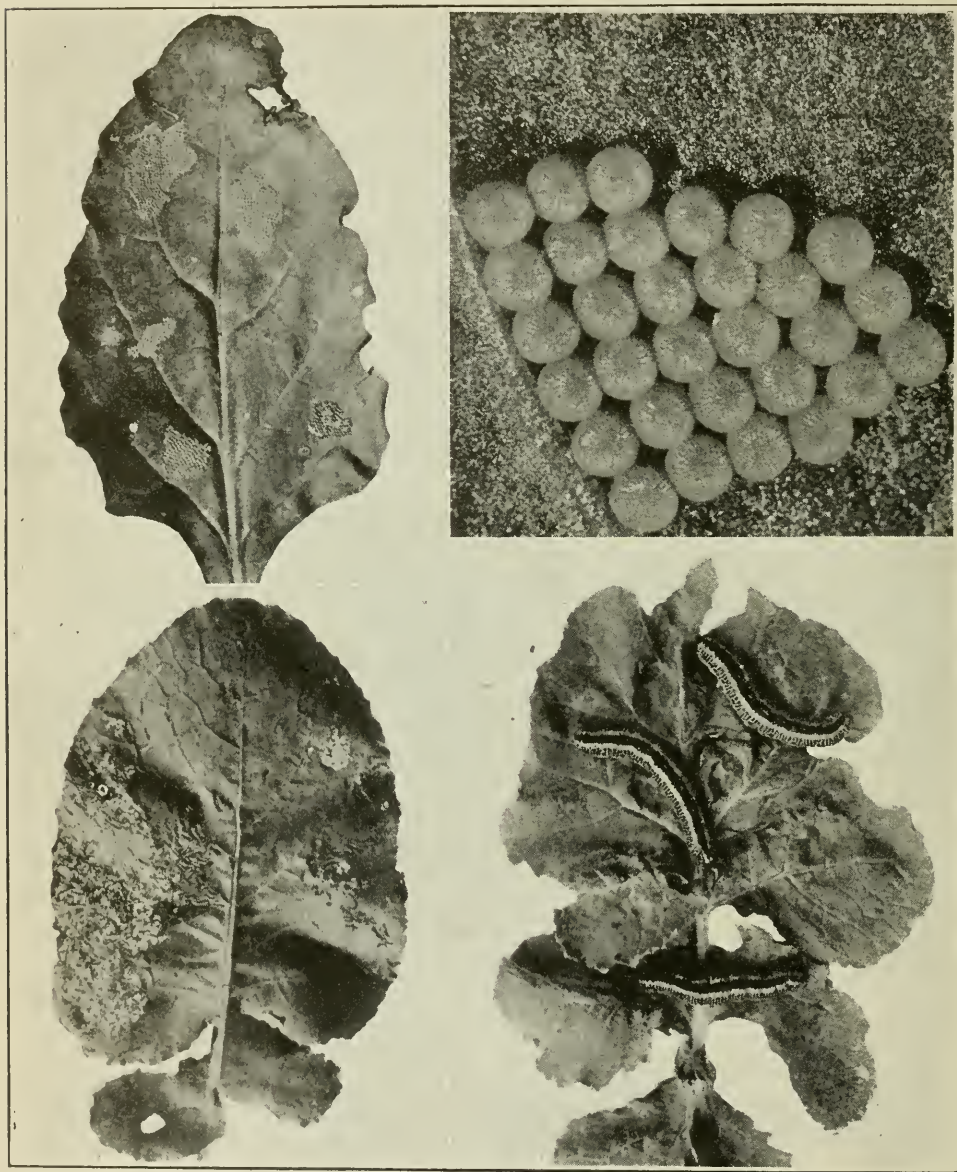
3

Zebra Caterpillar (*Ceramica picta*).

1. Larva, lateral and dorsal view, and pupa, ventral and dorsal view.
2. Larva with egg of tachina parasite near head. Enlarged.
3. Adults at rest on turnip leaf.

1

2



3

4

Zebra Caterpillar (*Ceramica picta*).

1. Turnip leaf with egg masses attached.
2. Eggs greatly enlarged.
3. Newly hatched larvæ on turnip leaf.
4. Mature larvæ on turnip leaf.

In 1915, Zebra caterpillars of the second brood were found to be quite common, though not particularly injurious, in the neighborhood of Kentville, but the next year was the first that any complaint regarding injury, was received. In 1916, there was a very serious outbreak in some localities, mostly in Kings County and numerous turnip fields were stripped of their leaves, the greater damage was being done, as usual, by caterpillars of the second brood. Full grown larvæ collected about Kentville in the fall, were found to be heavily parasited and it was thought that there was little danger of a serious outbreak the next year.

This proved to be true as far as the vicinity of Kentville was concerned, but further west in western Kings and Annapolis counties, and in parts of Digby and Yarmouth counties, there was an equally—if not a more severe outbreak, even the first brood caterpillars being fairly numerous and destructive in some cases. All the farmers, with scarcely an exception, stated that the insect was a new pest—one that they had never seen before. This does not necessarily indicate that the pest was a new one to our province and the nature and distribution of the outbreak would make this possibility extremely unlikely. It does indicate, however, that the period between outbreaks must be comparatively long.

Of the various crops attacked, turnip fields suffered most. Sometimes after the leaves were stripped, the caterpillars would attack the roots themselves and devour a sufficient amount to do considerable damage. On several occasions the larvæ were observed to migrate from one field to another after the manner of the army worm. This occurred when the particular crop upon which they were feeding was entirely devoured. Migrations were observed from turnips to grass and from buckwheat to potatoes.

The insects seem to be quite careless regarding their diet, feeding upon, in addition to those plants already mentioned, beets, mangolds, beans, hydrangeas, sweet peas, pigweed and even apple and plum trees. Eggs of the moth were found deposited on apple leaves twelve feet from the ground.

On a small scale and where cheap labor was available hand-picking the leaves bearing egg masses or nearly hatched caterpillars was the most economical remedy. Where this could not be done, dusting with powdered arsenicals applied by means of a blower, gave very satisfactory results.

THE ENTOMOLOGICAL RECORD, 1917.

ARTHUR GIBSON, CHIEF ASSISTANT ENTOMOLOGIST, DEPARTMENT OF
AGRICULTURE, OTTAWA.

Students of insects in Canada have again to acknowledge the many favours received from specialists in the United States and elsewhere for assistance in the determination of species. Dr. L. O. Howard and his colleagues, at Washington, have, as in the past, helped us very materially; Messrs. Barnes and McDunnough, have named many doubtful species of Lepidoptera; Messrs. Casey, Wickham, Liebeck, Leng, Fall, Frost, and Van Dyke have assisted in the Coleoptera; Messrs. Aldrich, Malloch, Johnson, Hine and M. C. Van Duzee, have determined Diptera, and Mr. J. H. Emerton has continued to examine spiders. All of these specialists, as well as others who have assisted us, have our sincere thanks.

LITERATURE.

Among the books, memoirs, etc., (which have appeared during 1917) of interest to Canadian students the following may be mentioned:

BANKS, NATHAN. Index to the Literature of American Economic Entomology, January 1, 1905, to December 31, 1914: American Association of Economic Entomologists, Melrose Highlands, Mass. This most useful volume of 323 pages is a continuation of the Bibliography of Economic Entomology, which was published by the Bureau of Entomology, Washington, D.C. The insects and other headings are arranged alphabetically; under each are placed the references by author alphabetically.

BARNES WILLIAM and McDUNNOUGH, J.H. Contributions to the Natural History of the Lepidoptera of North America; Vol. IV, No. 1. A Revision of the Genus *Hydriomena* Hbn., Decatur, Ill.: The Review Press, May 23, 1917, pp. 1-38, plates I-X. The results of this study are of particular interest to Canadian lepidopterists. The genus *Hydriomena* is one which has given much trouble and we are glad to have the results of this most recent study of these moths. A number of new species are described, and racial names given to several others. Four of these latter are from British Columbia, and one from Manitoba. Plates I to VI illustrate the various species, etc., many types being figured, and plates VII to X, illustrate male genitalia.

BETHUNE, C. J. S. Bibliography of Canadian Entomology for the year 1915: Trans. Royal Society of Can., Vol. X, Series III, 1916, pp. 169-187; separate received May 7, 1917. References are given to 175 papers; 71 of these relate to economic entomology; 12 to general entomology; 23 to lepidoptera; 13 to hymenoptera, etc.

CHAGNON, G. A preliminary List of the Insects of the Province of Quebec, part III—Coleoptera; published as a supplement to the ninth annual report of the Quebec Society for the Protection of Plants; received Oct. 10, 1917. These lists are very useful. The list of coleoptera comprises 278 pages. Under each species, as in the two previous lists, the various known records are published. The author is to be congratulated on the completion of such a valuable list.

FUNKHOUSER, W. D. Biology of the Membracidae of the Cayuga Lake Basin; Cornell University Agric. Exp. Stn.; Memoir 11, June, 1917. This interesting memoir is the result of an extended biological study of the species found in the above district. It comprises pp. 181 to 445 and is illustrated with a number of figures and plates. Sixty-one species are discussed.

GARMAN, PHILIP. The Zygoptera, or Damsel Flies, of Illinois; Bulletin of the Illinois State Laboratory of Natural History, Article IV, June, 1917; pp. 411-586, plates LVIII-LXXII. Following valuable chapters on morphology, life-history and habits, and history of the Zygoptera, the classification of the species is dealt with. Generic and specific keys are given and descriptions of the nymphs and adults. The plates illustrate structural characters, etc.

HEBARD, MORGAN. The Blattidae of North America north of the Mexican boundary: Philadelphia, Pa., Memoirs of the American Ent. Soc., No. 2, received Aug. 14, 1917; 284 pages, 10 plates. In this important contribution forty-three species are recorded as established within the United States and of these ten are probably introduced. Two indigenous forms and two established adventives are known to occur north of the Canadian boundary. Pages 259 to 274 deal more briefly with species found to be adventive but not established in portions of the United States and Canada.

MALLOCH, JOHN R. A preliminary Classification of Diptera exclusive of Pupipara based on Larval and Pupal Characters, with keys to Imagines in certain Families; Part 1: Bulletin of the Illinois State Laboratory of Natural History, Vol. XII, Article III, March, 1917, pp. 161-409, plates XXVIII to LVII. This is indeed an important contribution and one which will be welcomed by both economic and taxonomic entomologists. The plates illustrate, chiefly, larval and pupal characters. The paper deals primarily with Illinois species.

MELANDER, A. L. and SPULER, ANTHONY. The Dipterous Families Sepsidae and Piophilidae: Bull. No. 143, April, 1917, Agric. Exp. Sta., Pullman, Wash. The species discussed in this paper are commonly combined as the family Sepsidae. Economically they are principally scavengers, feeding and breeding in filth, sewage, etc. Descriptions of twenty new species and six new varieties are included. Four are from Canada. The plate at the end illustrates modifications of femora and tibiae of various species.

PARKER, JOHN BERNARD. A Revision of the Bembicine Wasps of America, north of Mexico: Proc. U.S.N.M., Vol. 53, pp. 1-55; published Feb. 10, 1917. This revision is based upon a study of the specimens in the United States National Museum and other important collections. A number of new species are described, only one of which, however, is from Canada. Interesting biological notes are given on pages 123-141. Eight plates showing structural characters are included.

PARSHLEY, H. M. Fauna of New England, 14; List of the Hemiptera-Heteroptera; Occasional Papers of the Boston Society of Nat. History, VII, Aug., 1917. This useful list will be of special interest to Canadian hemipterists of Eastern Canada, as many of the species herein recorded will undoubtedly be found in Quebec and the Maritime Provinces. Four hundred and nineteen species are listed, definite localities and dates of collection being given.

QUAINTANCE, A. L., and BAKER, A. C. A contribution to our knowledge of the White Flies of the Subfamily Aleyrodinae (Aleyrodidae): Proc. U.S.N.M., Vol. 51, pp. 335-445, with plates 32-77; published January 20, 1917. This contribution is in continuance of Parts 1 and 2 of Bull. 27, Tech. Series, U.S. Bureau of Entomology. One new species is described from Canada.

VAN DUZEE, EDWARD P. Catalogue of the Hemiptera of America, north of Mexico, excepting the Aphididae, Coccidae, and Aleurodidae; University of California Publications; Technical Bulletins; Entomology, Vol. 2, pp. 1-902, Nov. 30, 1917. This catalogue undertakes to give a complete enumeration of all the described Hemiptera to and including the Chermidae, recorded from or known to occur in America north of the southern boundary of the United States. The families Aphididae, Coccidae and Aleurodidae have been omitted, largely because of the fact that Mr. Van Duzee has made no careful study of these groups. The numbering of the species in the catalogue has been made to correspond with that in the Check List published in 1916, by the New York Entomological Society, species published since being interpolated in the catalogue in fractional form. Mr. Van Duzee has been a great help to Canadian hemipterists and we congratulate him on the completion of this most valuable catalogue.

VIERICK, H. L., with the collaboration of A. D. MACGILLIVRAY, C. T. BRUES, W. M. WHEELER and S. A. ROWHER: State of Conn., Bull. 22, Geological and Natural History Survey; Part III, the Hymenoptera, or Wasp-like insects, of Connecticut. This most valuable part of the Guide to the Insects of Connecticut, prepared under the direction of Dr. W. E. Britton, was received in March, 1917. It is a large volume of 824 pages and 10 plates. Keys are included to families, sub-families, and species. Dr. Britton with the various authors are to be con-

gratulated on the completion of this work which will prove indispensable to students of insects generally. The purpose of the volume is primarily, as Dr. Britton states, to present a ready means for determining insects belonging to the hymenoptera, along with such cardinal facts as will leave no doubt as to the desirability of becoming familiar with the order as a whole, and more especially with those forms that are beneficial to us and the few kinds that we call injurious.

WHEELER, WILLIAM MORTON. The Mountain Ants of Western North America: Amer. Academy of Arts and Sciences, Vol. 52, No. 8, Jan., 1917, pp. 457-569. In this valuable contribution many Canadian records are included. One new species, three sub-species and three varieties are described from Western Canada.

NOTES OF CAPTURES.

(Species preceded by an asterisk (*) described during 1917.)

LEPIDOPTERA.

(Arranged according to Barnes and McDunnough's Check List of the Lepidoptera of North America.)

Papilionidæ.

6. *Papilia zelicaon* Luc. Nordegg, Alta., July 12-17, 1917, 6,500 feet, (K. Bowman and F. C. Whitehouse).

Pieridæ.

39. *Euchloe creusa* Dbldy. Nordegg, Alta., July 12, 1917, 6,500 feet, (K. Bowman and F. C. Whitehouse).

Satyridæ.

103. *Coenonympha inornata* Edw. Toronto, Ont., (H. S. Parish). Addition to Toronto list.
119. *Cercyonis oetus* Bdv. Nordegg, Alta., Aug. 10, 1916, 5,000 feet, (F. C. Whitehouse).

Nymphalidæ.

198. *Brenthis youngi* Holl. Klutlan Glacier, Yukon, 9,000 feet, June, 1913, (H. F. J. Lambart).
202. *Brenthis astarte* D. & H. Nordegg, Alta., July 14-16, 1917, 6,500 feet, (K. Bowman and F. C. Whitehouse).

Lycaenidæ.

- * *Lycaena lygdamus columbia* Skinner. "Vancouver"; Ent. News, XXVIII, 213.

Hesperiidæ.

488. *Hesperia centaurea* Ramb. Nordegg, Alta., July 12, 1917, 6,500 feet, (K. Bowman and F. C. Whitehouse).

Sphingidæ.

671. *Dolba hylæus* Dru. Quyon, Que., Aug. 23, 1917, (J. I. Beaulne). Only one record in Winn's List of Quebec Lepidoptera, namely, "Dunham Co., VII, (Fyles)."

705. *Smerinthus jamaicensis geminatus* Say. Armstrong, B.C., July 12, 1915, (W. Downes). Only record we have for B.C.
706b. *Smerinthus cerisyi ophthalmicus* form *pallidulus* Edw. Victoria, B.C., June 28, 1913, July 14, 1917, bred ex. pupa; new record for B.C.; have seen no other specimens in B.C. collections, (E. H. Blackmore).

Saturniidae.

794. *Pseudohazis eglanterina* G. & R. Victoria, B.C., July 23, 1917; taken by a schoolboy on the outskirts of the city; first record for Victoria, (E. H. Blackmore).

Arctiidae.

855. *Lexis bicolor* Grt. Pocahontas, Alta., Aug., 1916; Nordegg, Alta., July, 1917, (K. Bowman).
947. *Neoarctia yarrowi* Stretch. Nordegg, Alta., July 13-16, 6,500 feet, (K. Bowman and F. C. Whitehouse).
988. *Apantesis williamsi determinata* Neum. Murray Bay, Que., (J. G. Holmes). Previously recorded in Quebec Province from St. Agathe.

Noctuidae.

1080. *Dysocnemis oregonica* Hy. Edw. Armstrong, B.C., May 5, 1907, (W. Downes).
1254. *Euxoa andera* Sm. Armstrong, B.C., July 10, 1915, (W. Downes).
1308. *Euxoa terrena* Sm. Victoria, B.C., Aug. 14, 1917, (E. H. Blackmore).
1313. *Euxoa ontario* Sm. Hymers, Ont. July 30, 1911, (H. Dawson).
1329. *Euxoa tessellata* Harr. Goldstream, B.C., Sept. 1, 1917, (E. H. Blackmore).
1332. *Euxoa esta* Sm. Goldstream, B.C., Sept. 1, 1917, one of the rarest Euxoas in the province, (E. H. Blackmore).
1438. *Agrotis rubifera* Grt. Armstrong, B.C., 1914, (W. Downes).
1475. *Epipsilia monochromatea* Morr. Bridgetown, N.S., May 26, 1914, (G. E. Sanders).
1561. *Abagrotis erratica* Sm. Victoria, B.C., Aug. 11, 1917, (E. H. Blackmore); first record from Vancouver Isl.; previously recorded from Kaslo, (J. W. Cockle) and has been taken at Okanagan Landing (J. A. Munro) and Armstrong (W. Downes)—E. H. B.
1628. *Anarta richardsoni* Curt. Kluthlan Glacier, Yukon, 9,000 feet, June, 1913, (H. F. J. Lambart).
1760. *Polia restora* Sm. Victoria, B.C., Aug. 19, 1916, (E. H. Blackmore); Aug. 25, 1916, (M. Brinkman).
1853. *Eriopyga infidelis* Dyar. Victoria, B.C., Aug. 14, 1917, (E. H. Blackmore).
1938. *Cirphis farcta* Grt. Armstrong, B.C., July 22, 1915, (W. Downes).
2168. *Graptolitha thaxteri* Grt. Montreal. Que., May 12, 1917, (A. F. Winn).
2177. *Xylotype capax* G. & R. Hymers, Ont., Sept. 15, 1911, (H. Dawson).
2178. *Eurotype confragosa acutissima* Grt. Murray Bay, Que., (J. G. Holmes). Addition to the Quebec list.
2187. *Eumichtis ducta* Grt. Smith's Cove, N.S., July 15, 1916. (C. A. Good).
2189. *Eumichtis miniota* Sm. Fort William. Ont., Aug. 19, 1907.
2254. *Septis antennata purpurissata* B. & McD. Victoria, B.C., July 25, 1916; July 21, 1917, (E. H. Blackmore).
2412. *Cerma cuerva* Barnes. Victoria, B.C., Aug. 25, 1916, (E. H. Blackmore). This species has previously been listed under the name of *olivacea* Sm.

Victoria is the only recorded locality in British Columbia for this species, which is rather rare, (E. H. B.).

2465. *Acronycta tritona* Hbn. Hymers, Ont., June 7, 1911, (H. Dawson).
 2485. *Acronycta chionochroa* Hamp. Edmonton, Alta., May, 1910, (K. Bowman).
 2489. *Acronycta innotata* Gn. Edmonton, Alta., June, 1916, (K. Bowman).
 2613. *Menopsimus caducus* Dyar. Waubamic, Parry Sound, Ont., Aug. 4, 5, (H. S. Parish).
 * *Xylomoia chagnoni* B. & McD. Rouville Co., Que., June 4; Mt. St. Hilaire, Que., July 4, 6, (G. Chagnon); Cartwright, Man., (E. F. Heath); Can. Ent. XLIX, 320.
 2648. *Gortyna obliqua* Harv. Saanich, B.C., Sept. 22, 1916, (W. Downes).
 3256. *Autographa nichollæ* Hamp. Rosedale, B.C., June 22, 1917, (E. H. Blackmore). This species occurs sparingly throughout the Lower Fraser Valley and has previously been listed under the name of *Euchalcia putnami* Grt., (E. H. B.).
 3274. *Autographa ampla* Wlk. Victoria B.C., July 12, 1917, not previously recorded from this locality, (E. H. Blackmore).
 3441. *Mycetophora inexplicata* Wlk. Waubamic, Parry Sound, Ont., July 12, (H. S. Parish); Edmonton, Alta., July 7, 1915, (D. Mackie).

Notodontidæ.

3596. *Datana angusii* G. & R. Jordan, Ont., June 30, 1916, (W. A. Ross).

Drepanidæ.

3757. *Oreta rosea* Wlk. Edmonton, Alta., July 12, 1916, (D. Mackie).
 3758. *Oreta irrorata* Pack. Edmonton, Alta., July 12, 1916, (D. Mackie).
 3761. *Drepana arcuata siculifer* Pack. Edmonton, Alta., June, 1916, (K. Bowman).

Geometridæ.

3862. *Acidalia frigidaria* Moesch. Edmonton, Alta., July 13, 1915, (D. Mackie).
 3865. *Acidalia fuscata* Hlst. Edmonton, Alta., May 29, 1915, (D. Mackie).
 3918. *Cosymbia lumenaria* Hbn. Rosedale, B.C., June 20, 1917, (E. H. Blackmore).
 3981. *Lygris destinata lugubrata* Moesch. Montfort, Que., June 30, 1916, W. T. M. Forbes).
 3982. *Lygris similis harveyata* Tayl. Edmonton, Alta., Aug., 1916, (K. Bowman).
 3990. *Thera otisi* Dyar. Pocohontas, Alta., Aug., 1916, (K. Bowman). Mr. E. H. Blackmore, of Victoria, B.C., has informed me that the species recorded in last year's Record, under this name proves to be what he calls *Xanthorhoe incursata*, although it is rather doubtful if the insect is the real *incursata*.
 * *Dysstroma mulleolata sobria* Swett. Victoria, B.C., June 22, 1914, (E. H. Blackmore); Can. Ent., XLIX, 69.
 * *Dysstroma mulleolata subumbrata* Swett. Victoria, B.C., June 2, 14, 16, 22, 1914; June 24, 26, 1915, (E. H. Blackmore); Can. Ent. XLIX, 70.
 * *Dysstroma mulleolata ochrofuscaria* Swett. Victoria, B.C., June 27, 1915, (E. H. Blackmore); Duncan, B.C., June 14, 1910, (A. W. Hanham); Duncan, B.C., Aug. 7, 1908, (G. O. Day); Vancouver Island, July 16, 1905; Can. Ent. XLIX, 70.

4014. *Hydriomena perfracta* Swett. Nordegg and Pocohontas, Alta., June-July, 1917, (K. Bowman). This, I understand, is now considered to be a distinct species and not a variety of *coerulata*.
- * *Hydriomena exculpata tribulata* B. & McD. Kaslo, B.C.; Contr. Nat. Hist. Lep. N.A., IV, 14.
- * *Hydriomena perfracta exasperata* B. & McD. Departure Bay, Van. Is., B.C., July 13, (G. W. Taylor); Wellington, B.C., June 23, (G. W. Taylor); Contr. Nat. Hist. Lep. N.A., IV, 19.
- * *Hydriomena frigidata manitoba* B. & McD. Cartwright, Man., May 25, 28; Contr. Nat. Hist. Lep. N.A., IV, 17.
- * *Hydriomena renunciata pernigrata* B. & McD. Skagit Basin, B.C.; Stickeen River, B.C.; Contr. Nat. Hist. Lep. N.A., IV, 25.
- * *Hydriomena edenata grandis* B. & McD. Duncan, B.C., March 24-30; Victoria, B.C., April 8, 13, 16; Contr. Nat. Hist. Lep. N.A., IV, 33.
4042. *Xanthorhoe convallaria mephistaria* Swett. Goldstream, B.C., Sept. 3, 1917, (E. H. Blackmore).
4053. *Xanthorhoe congregata* Wlk. Edmonton, Alta., July 13, 1915, (D. Mackie).
4053. *Xanthorhoe salvata* Pears. Edmonton, Alta., July 18, 1915, (D. Mackie).
4092. *Epirrhoe alternata* Mull. Rosedale, B.C., June 22, 1917, (E. H. Blackmore).
4094. *Perizoma basaliata grandis* form *saawichata* Swett. Victoria, B.C., July 12, 1917, (E. H. Blackmore).
- 4115, 1. *Venusia obsoleta* Swett. Quamichan Lake, near Duncan, B.C., April 18, 1917, (G. O. Day).
4120. *Hydrelia albifera* Wlk. Rosedale, B.C., June 27, 1917. This is the farthest west record of this eastern species, Kaslo being the only other recorded locality in the Province, (E. H. Blackmore).
4158. *Eupithecia columbiata* Dyar. Edmonton, Alta., April 17, 1915, (D. Mackie).
4171. *Eupithecia casloata* Dyar. Rosedale, B.C., June 26, 1917, (E. H. Blackmore).
4218. *Eupithecia stellata* Hulst. Edmonton, Alta., July 23, 1915, (D. Mackie).
4226. *Eupithecia nevadata* Pack. Victoria, B.C., April 3, 1917, (E. H. Blackmore).
4243. *Eupithecia usurpata* Pears. Victoria, B.C., April 12, 1917, (E. H. Blackmore).
4323. *Drepanulatrix litaria* Hulst. Lillooet, B.C., Sept. 22, 1917, (A. W. A. Phair). This is the true *litaria* of which *fumosa* is a synonym. I also have it from Kaslo, B.C., (J. W. Cockle) and Ymir, B.C., (W. H. Danby). The species that Dr. Dyar listed in his Kootenay list as *litaria* is *falcataria* Pack., (E. H. Blackmore).
4332. *Philobia ulsterata* Pears. Cloverdale, B.C., July 9, 1917, (Bevan Hugh). This is one of the rarest of our B.C. geometers, the last previous record I have of this species is Vancouver, B.C., June 7, 1908, A. H. Bush, (E. H. Blackmore).
4341. *Macaria bicolorata* Fabr. Armstrong, B.C., 1913, (W. Downes).
4398. *Hesperumia sulphuraria* form *baltearia* Hulst. Armstrong, B.C., June, 1915, (W. Downes).
4407. *Itame brunneata* Thun. Montfort, Que., June 30, 1916, (W. T. M. Forbes). Addition to Quebec list.

4413. *Itame exauspicata* Wlk. Edmonton, Alta., July 18, 1915, (D. Mackie).
 4429. *Itame hulstaria* Tayl. Edmonton, Alta., May 22, 1915, (D. Mackie).
 4478. *Platava trilinearia* Pack. Lillooet, B.C., (A. W. A. Phair). This is an interesting record as the only previous recorded specimen for British Columbia was taken many years ago by Mr. H. Skinner, at Keremeos Creek, B.C., (E. H. Blackmore).
 4488. *Nepytia semiclusaria pellucidaria* Pack. Lillooet, B.C., Sept. 22, 1917, (A. W. A. Phair); Armstrong, B.C., (W. Downes). New record for B.C., (E. H. Blackmore).
 4553. *Cleora excelsaria* Stkr. Goldstream, B.C., June 3, 1917, at rest on the charred trunk of a pine tree, first specimen taken for over 12 years, (E. H. Blackmore).
 4644. *Sicya macularia crocearia* Pack. Victoria, B.C., July 17, 1917; fairly common at night, has dimorphic females, (E. H. Blackmore).
 * *Euchlaena albertanensis* Swett. Calgary, Alta., May 31, 1912, (F. H. Wolley-Dod); Edmonton, Alta., June 16, 1916, (K. Bowman); Edmonton, Alta., (D. Mackie); Can. Ent. XLIX, 351.
 4711. *Selenia alciphearia ornata* B. & McD. Victoria, B.C., July 17, 1917, (E. H. Blackmore); Cloverdale, B.C., July 30, 1917, (Bevan Hugh).
 4726. *Metanema quercivoraria* Gn. Cloverdale, B.C., June 28, 1917, (E. H. Blackmore); July 12, 1917, (Bevan Hugh).

Pyraliidæ.

5098. *Phlyctænia acutella* Wlk. Waubamic, Parry Sound, Ont., July 15, 1916, (H. S. Parish).
 5216. *Cataclysta magnificalis* Hbn. Waubamic, Parry Sound, Ont., July 12, (H. S. Parish).
 5238. *Scoparia penumbralis* Dyar. Waubamic, Parry Sound, Ont., June 5, July 26, (H. S. Parish).
 5254. *Pyralis costiferalis* Wlk. Waubamic, Parry Sound, Ont., July 12, (H. S. Parish).
 * *Schænobius amblyptepennis* Dyar. St. John's, Que., July 11, 1915, (W. Chagnon); Insecutor Inscitiæ Menstruus V, 80.
 * *Schænobius melinellus uniformellus* Dyar. St. Therese Island, Que., July 28, 1915, (W. Chagnon); St. John's Que., July 31, 1915, (W. Chagnon); Winnipeg, Man., (A. W. Hanham); Insecutor Inscitiæ Menstruus, V. 81.
 * *Immyrta pasadamia* Dyar. St. John's Que., June 18, 1911, (W. Chagnon); Insecutor Inscitiæ Menstruus, V. 45.

Aegeriidae.

6686. *Synanthedon corni* Hy. Edw. Waubamic, Parry Sound, Ont., July 12, (H. S. Parish).

Lyonetiidae.

8135. *Bucculatrix pomifoliella* Clem. Hemmingford, Que., June 13, 1917, (C. E. Petch). Only one record, namely, "Montreal" in Winn's Quebec list.

Nepticulidæ.

- * *Nepticula canadensis* Braun. Bear Creek, near Roger's Pass, B.C.; Trans. Amer. Ent. Soc., XLIII, 185.

Micropterygidae.

8477. *Mnemonica auricyanea* Wlshm. Megantic, Que., July 6, Sherbrooke, Que.—
Lake Park—July 5; Montfort, Que., June 30, 1916, (W. T. M. Forbes).
Addition to Quebec list.

Hepialidae.

8488. *Hepialus mathewi* Hy. Edw. Victoria, B.C., Sept. 23, 1917, (E. H. Blackmore). This species has stood under the name of *hyperboreus* Moesch. in B.C. collections for many years. It also occurs at Duncan, B.C., and Vancouver, B.C., (E. H. B.).
8493. *Hepialus montanus* Stretch. Victoria, B.C., May 3, 1915; June 20, 1916, (E. H. Blackmore).

COLEOPTERA.

(Arranged according to Henshaw's list of Coleoptera of America, North of-Mexico.)

(Henshaw's number.)

Cicindelidae.

36. *Cicindela cinctipennis* Lec. Red Deer, Alta., July 8, 1917, (P. A. Taverner and C. H. Young).

Carabidae.

77. *Omophron tessellatum* Say. Lanoraie, Que., June, July, 1915, (G. Beaulieu).
177. *Notiophilus semistriatus* Say. Miami, Man., June 28, 1916, (J. B. Wallis).
189. *Nebria gebleri* Dej. Lake Louise, Alta., Aug. 13, 1915, (J. B. Wallis).
231. *Dyschirius longulus* Lec. Husavick, Man., June 22, 1912; Winnipeg, Man., Aug. 16, 1916, (J. B. Wallis). New to Manitoba.
240. *Dyschirius erythrocerus* Lec. Miami, Man., July 6, 1914, (J. B. Wallis). New to Manitoba.
251. *Dyschirius pumilis* Dej. Aweme, Man., June 9, 1916. (N. Criddle). New to Manitoba.
254. *Dyschirius hispidus* Lec. Aweme, Man., June 9, 1916, (N. Criddle).
317. *Bembidium americanum* Dej. Husavick, Man., June 9, 1910, (J. B. Wallis). New to Manitoba.
374. *Bembidium approximatum* Lec. Weyburn, Sask., June 18, 1916, (N. Criddle).
385. *Bembidium aneicolle* Lec. Winnipeg Beach, Man., (J. B. Wallis).
388. *Bembidium intermedium* Kirby. Aweme, Man., July 27, 1916, (N. Criddle).
391. *Bembidium versicolor* Lec. Estevan, Sask., May 21, 1916, (N. Criddle).
398. *Bembidium morulum* Lec. Aweme, Man., June 10, 1909, (E. Criddle). New to Manitoba.
412. *Bembidium connivens* Lec. Ogema, Sask., June 16, 1916, (N. Criddle). New to Saskatchewan.
473. *Patrobis septentrionis* Dej. Gimli, Man., July 19, 1916, (Frances Burridge). New to Manitoba.
- Trechus borealis*. Husavick, Man., July 8, 1915. (J. B. Wallis). New to Manitoba.

671. *Amara farcta* Lec. Lethbridge, Alta., Aug. 23, 1912, (J. B. Wallis); Calgary, Alta., May 10, 1915, (W. H. T. Tams); Winnipeg, Man., May 3, 1912, (J. B. Wallis). New to Manitoba.
678. *Amara remotestriata* Dej. Lethbridge, Alta., Aug. 21, 1912, (J. B. Wallis); Bird's Hill, Man., Aug. 27, 1916, (J. B. Wallis). New to Manitoba.
898. *Lebia depicta* Horn. Winnipeg, Man., Oct. 4, 1912, (J. B. Wallis). New to Manitoba.
906. *Dromius piceus* Dej. Miami, Man., June 27, 1916, (J. B. Wallis). New to Manitoba.
- 1087c. *Harpalus erythropus* Dej. Miami, Man., June 27, 1916, (J. B. Wallis). New to Manitoba.

Halipidæ.

- Peltodytes sexmaculatus* Robts. Bird's Hill, Man., Aug. 27, 1916, (J. B. Wallis); Miami, Man., Oct. 9, 1916, (J. B. Wallis). New to Manitoba.

Dytiscidæ.

- * *Laccophilus inconspicuus* Fall. Winnipeg, Man., June 3, 1911, (J. B. Wallis); Edmonton, Alta., (F. S. Carr); Montreal, Que.; Jour. N.Y. Ent. Soc., XXV, 164.
1296. *Coelambus masculinus* Cr. Thornhill, Man., July 1, 1916, (J. B. Wallis); Winnipeg, Man., Sept. 23, 1916, (J. B. Wallis). New to Manitoba.
1298. *Coelambus unguicularis* Cr. Winnipeg, Man., May 11, 1912; Sept. 2, 1916, (J. B. Wallis). New to Manitoba.
1314. *Hydroporus undulatus* Say. Winnipeg, Man., Aug. 16, 1916, (J. B. Wallis). New to Manitoba.
1430. *Agabus congener* Payk. Winnipeg, Man., June 20, 1915, (J. B. Wallis).
1458. *Rhantus flavogriseus* Cr. Winnipeg, Man., Sept. 2, 1916, (J. B. Wallis). New to Manitoba.

Gyrinidæ.

1524. *Gyrinus pectoralis* Lec. Onah, Man., May 24, 1912, (J. B. Wallis); Winnipeg, Man., June 6, 1911, (J. B. Wallis). New to Manitoba.

Hydrophilidæ.

1582. *Hydraena pennsylvanica* Kies. Aweme, Man., July 21, 1903, (N. Criddle). New to Manitoba.
1590. *Tropisternus mixtus* Lec. Selkirk, Man., Sept. 23, 1911, (J. B. Wallis); Winnipeg, Man., Aug. 16, 1916, (J. B. Wallis). New to Manitoba.
1672. *Cercyon melanocephalum* Linn. Aweme, Man., July 4, 1910, (N. Criddle). New to Manitoba.

Pselaphidæ.

1875. *Tyrus humeralis* Aube. Aweme, Man., (N. Criddle).

Staphylinidæ.

2092. *Acylophorus pronus* Er. Husavick, Man., June 22, 1912, (J. B. Wallis).
2106. *Quedius lavigatus* Gyll. Aweme, Man., July 19, 1917, (N. Criddle).
Quedius curtipennis Csy. Aweme, Man., June 27; Sept. 6, 1917, (N. Criddle).
2128. *Staphylinus erythropterus* Linn. Aweme, Man., (N. Criddle).

2189. *Philonthus hudsonicus* Horn. Husavick, Man., June 22, 1912, (J. B. Wallis).
Philonthus protervus Csy. Winnipeg, Man., June 24, 1912, (J. B. Wallis).
New to Manitoba.
2204. *Philonthus sordidus* Grav. Peachland, B.C., July 19, 1912, (J. B. Wallis);
Winnipeg, Man., May 13, 1911, (J. B. Wallis). New to Manitoba.
2213. *Philonthus brevipennis* Horn. Aweme, Man., June 27; Sept. 6, 1917,
(N. Criddle).
2220. *Philonthus punctatellus* Horn. Winnipeg, Man., May 6, 1912, (J. B. Wallis). New to Manitoba.
2221. *Philonthus nigrutilus* Grav. Winnipeg, Man., May 30, 1912; Husavick,
Man., June 23, 1912, (J. B. Wallis). New to Manitoba.
2251. *Actobius paderoides* Lec. Winnipeg, Man., April 29, 1911, (J. B. Wallis).
2268. *Xantholinus cephalus* Say. Peachland, B.C., July 19, 1912; Winnipeg,
Man., May 18, 1912; Miami, Man., July 2, 1914, (J. B. Wallis). New
to Manitoba.
2319. *Stenus femoratus* Say. Onah, Man., May 24, 1912, (J. B. Wallis). New
to Manitoba.
2355. *Stenus corvus* Csy. Winnipeg, Man., June 6, 1916, (J. B. Wallis). New
to Manitoba.
2358. *Stenus alpicola* Fauv. Husavick, Man., June 22, 1912, (J. B. Wallis).
New to Manitoba.
2377. *Stenus humilis* Er. Onah, Man., May 24, 1912, (J. B. Wallis).
2389. *Stenus vinnulus* Csy. Onah, Man., May 24, 1912, (J. B. Wallis).
Platymedon laticollis Csy. Aweme, Man., May 2, 1916, (N. Criddle).
New to Manitoba.
- Lathrobium obtusum* Csy. Onah, Man., May 24, 1912, (J. B. Wallis).
New to Manitoba.
2512. *Lathrobium punctulatum* Lec. Husavick, Man., July 3, 1910; Winnipeg,
Man., Sept. 18, 1912, (J. B. Wallis). New to Manitoba.
2514. *Lathrobium nigrum* Lec. Husavick, Man., Aug., 1914, (J. B. Wallis).
New to Manitoba.
2525. *Lathrobium concolor* Lec. Winnipeg, Man., April 17, 1911; Onah, Man.,
May 24, 1912, (J. B. Wallis). New to Manitoba.
2526. *Lathrobium simplex* Lec. Onah, Man., May 24, 1912, (J. B. Wallis).
New to Manitoba.
2548. *Pycnorus (Scopæus) dentiger* Lec. Stony Mountain, Man., April 21,
1916, (J. B. Wallis). New to Manitoba.
2557. *Stilicus biarmatus* Lec. Winnipeg, Man., May 18, 1912, (J. B. Wallis).
New to Manitoba.
2562. *Lithocharis obsoleta* Nordm. Onah, Man., May 24, 1912, (J. B. Wallis).
New to Manitoba. Col. Casey refers this to *Pseudomedon thoracicum*
Csy., saying that *obsoleta* does not occur in N. A. (H.C.F.)
2578. *Sunius prolixus* Er. Winnipeg, Man., May 13, 1911, (J. B. Wallis).
New to Manitoba.
2580. *Sunius brevipennis* Aust. Aweme, Man., June 19, 1917, (N. Criddle).
2626. *Tachinus pallipes* Grav. Winnipeg, Man., May 14, 1912, (J. B. Wallis).
New to Manitoba.
2751. *Orytelus niger* Lec. Winnipeg, Man., April 23, 1916, (J. B. Wallis).
New to Manitoba.

9715. *Oxytelus suspectus* Csy. Winnipeg, Man., May 13, 1911; Onah, Man., May 24, 1912, (J. B. Wallis).
2805. *Acidota crenata* Fab. Husavick, Man., July 15, 1912, (J. B. Wallis). New to Manitoba.
2831. *Olophrum rotundicolle* Sahlb. Husavick, Man., June 22, 1913, (J. B. Wallis).
2840. *Homalium lapponicum* Zett. Winnipeg, Man., June 1, 1912, (J. B. Wallis). New to Manitoba.
2851. *Homalium hamatum* Fauv. Miami, Man., June 27, 1916, (J. B. Wallis). New to Manitoba.

Scaphidiidæ.

2978. *Bæocera concolor* Fab. Aweme, Man., June 27, (N. Criddle).

Phalacridæ.

- Phalacrus probatus* Csy. Winnipeg, Man., May 13, 1911; Miami, Man., June 27, 1916; Husavick, Man., (J. B. Wallis).

Corylophidæ.

3011. *Sacium lugubre* Lec. Aweme, Man., May 3, 1903, (N. Criddle).
3024. *Gronevus (Corylophus) truncatus* Lec. Onah, Man., May 24, 1912; in moss in larch swamp, (J. B. Wallis). New to Manitoba.
3025. *Sericoderus flavidus* Lec. Aweme, Man., May 4, 1917; in swarms of *Formica fusca*, (N. Criddle).

Coccinellidæ.

3069. *Harmonia picta* var. *hudsonica*. Victoria Beach, Man., Aug. 7, 1916, (J. B. Wallis). New to Manitoba.
3162. *Scymnus punctatus* Melsh. Aweme, Man., Aug. 7, 1917, (N. Criddle); Thornhill, Man., July 5, 1916, (J. B. Wallis). New to Manitoba.

Endomychidæ.

3179. *Phymaphora pulchella* Newm. Bird's Hill, Man., Sept. 24, 1917, in fungus. (N. Criddle).
3186. *Aphorista vittata* Fab. Aweme, Man., July 7, 1916, (N. Criddle). New to Manitoba.

Cucujidæ.

3327. *Lamophtæus adustus* Lec. Aweme, Man., May 8, 1912, (E. Criddle).
3328. *Lamophtæus testaceus* Fab. Aweme, Man., June 9, 1916, (N. Criddle). New to Manitoba.

Cryptophagidæ.

- Agathengis pumilio* Csy. Miami, Man., June 26, 1916, (J. B. Wallis); Winnipeg, Man., May 14, (L. H. Roberts).
3380. *Coenoscelis ferruginea* Sahlb. Miami, Man., June 27, 1916, (J. B. Wallis). New to Manitoba.
9926. *Atomaria apicalis* Er. Aweme, Man., May 11, 1912, (N. Criddle). New to Manitoba.
3388. *Atomaria ochracea* Zimm. Aweme, Man., July 4, 1916, (N. Criddle).
3389. *Atomaria ephippiata* Zimm. Aweme, Man., April 15, 1905, (N. Criddle).

Mycetophagidæ.

3406. *Lilargus tetraspilotus* Lec. Aweme, Man., July 20, 1917, (N. Criddle); Miami, Man., June 27, 1916, (J. B. Wallis). New to Manitoba.

3407. *Litargus didesmus* Say. Aweme, Man., June 22, 1910, (N. Criddle).
New to Manitoba.

Histeridæ.

3461. *Hololepta fossularis* Say. Dunstan, Man., June 26, 1916, (Miss Jessie Duncan). New to Manitoba.
3464. *Hister planipes* Lec. Winnipeg, Man., June 20, 1915, (L. H. Roberts).
New to Manitoba.
3495. *Hister furtivus* Lec. Thornhill, Man., July 5, 1916, (J. B. Wallis).
New to Manitoba.
3551. *Dendrophilus punctulatus* Say. Miami, Man., July 4, 1914; Winnipeg, Man., May 31, 1915, (J. B. Wallis). New to Manitoba.
3571. *Saprinus rotundatus* var. *communis* Mars. Winnipeg, Man., June 10, 1914; Onah, Man., July 9, 1916, (J. B. Wallis). New to Manitoba.
3586. *Saprinus oregonensis* var. *sejunctus* Mars. Thornhill, Man., July 1, 1916, (J. B. Wallis). New to Manitoba.
3618. *Saprinus mancus* Say. Victoria Beach, Man., Aug. 7, 1916, (J. B. Wallis).
New to Manitoba.

Nitidulidæ.

3711. *Epurua ovata* Horn. Aweme, Man., Sept. 10, 1916, (N. Criddle).
3730. *Soronia undulata* Say. Aweme, Man., June 16, 1917, (N. Criddle).
3760. *Ips cylindricus* Lec. Aweme, Man., Oct. 24; June 24, 1906-11, (E. & N. Criddle).

Latridiidæ.

9990. *Corticaria fulva* Com. Winnipeg, Man., May 10, 1916, (J. B. Wallis).
New to Manitoba.
3779. *Stephostethus liratus* Lec. Winnipeg, Man., Aug. 2, 1916, (J. B. Wallis).
New to Manitoba.
Enicmus minus Fall. Aweme, Man., May 2, 1905, (N. Criddle). New to Manitoba.
Enicmus aterrimus Mots. var. *nitens*. Winnipeg, Man., June 10, 1916, on raspberry leaves, (J. B. Wallis).
Cartodere costulata Reitt. Winnipeg, Man., June 24, 1914; Sept. 16, in cellar, (J. B. Wallis).
3796. *Coninomus constrictus* Gyll. Winnipeg, Man., Sept. 14, Oct. 31, 1916; in cellar, (J. B. Wallis). New to Manitoba.

Trogositidæ.

3843. *Tenebrioides americana* Kirby. Ironside, Que., April 19, 1917, (L. M. Stöhr).
3890. *Byrrhus cyclophorus* Kirby. Winnipeg, Man., June 20, 26, 1915, (L. H. Roberts). Previously recorded by Hamilton from Hudson Bay.
3898. *Syncalyptra echinata* Lec. Victoria Beach, Man., Aug. 7, 1916; under board on sandy beach, (J. B. Wallis). Previously taken by Hanham at Brandon, Man.

Parnidæ.

3925. *Elmis vittatus* Melsh. Winnipeg, Man., July 19, 1916, (J. B. Wallis).
New to Manitoba.
3930. *Elmis fastiditus* Lec. Aweme, Man., Aug. 28, 1907; in river under stones, (N. Criddle).

3951. *Stenelmis vittipennis* Zimm. Aweme, Man., Aug. 28, 1917; in river under stones, (N. Criddle).

Heteroceridæ.

- Heterocerus schwarzi* Horn. Aweme, Man., Sept. 3, 1917; in mud, (N. Criddle).
3965. *Heterocerus collaris* Kies. Aweme, Man., Sept. 3, 1917; in mud, (N. Criddle).
3969. *Heterocerus pusillus* Say. Aweme, Man., Sept. 3, 1917; in mud, (N. Criddle).

Dasyllidæ.

3993. *Eucinetus terminalis* Lec. Winnipeg, Man., April 27, 1916, (J. B. Wallis).

Elateridæ.

4153. *Hypnoidus (Cryptohypnus) tumescens* Lec. Winnipeg, Man., June 13, 1914, (Wallis). New to Manitoba.
4220. *Elater pullus* Germ. Husavick, Man., July 6, 1915, (J. B. Wallis). New to Manitoba.
4223. *Elater discoideus* Fab. Miami, Man., June 27, 1916, (J. B. Wallis). New to Manitoba.
4271. *Ludius attenuatus* Say. Meach Lake, Que., June 21, 1916, (A. Gibson). Addition to Quebec list.
4286. *Agriotes pubescens* Melsh. Headingly, Man., June 13, 1916, (J. B. Wallis).
4380. *Campylus denticornis* Kirby. Aweme, Man., June 22, 1912, (E. Criddle).
4455. *Corymbites angularis* Lec. Vancouver, B.C., May 28, 1915, (R. N. Chrystal).
4456. *Corymbites medianus* Germ. Berens River, Man., July 18, 1916, (Misses Gordon & Lepage).
4487. *Corymbites splendens* Ziegl. Winnipeg, Man., June 13, 1914, (J. B. Wallis).
4495. *Corymbites metallicus* Payk. Onah, Man., July 7, 1916, (J. B. Wallis).
4499. *Orygonus obesus* Say. Winnipeg, Man., June 4, (L. H. Roberts). New to Manitoba.
Hemicrepidius (Asaphes) brevicollis Cand. Winnipeg, Man., Aug. 1, 1916, (J. B. Wallis).

Buprestidæ.

- Dicerca caudata* Lec. Victoria Beach, Man., June 17, 1916, (J. B. Wallis). New to Manitoba.
4738. *Agrius acutipennis* Mann. Thornhill, Man., June 30, 1916, (J. B. Wallis). New to Manitoba.
4742. *Agrius politus* var. *corylus*. Darlingford, Man., June 10, 1915. (W. R. Metcalfe). New to Manitoba.
4746a. *Agrius cephalicus* Lec. Onah, Man., July 9, 1916, (J. B. Wallis). New to Manitoba.

Cleridæ.

5178. *Clerus spegeus* Fab. Peachland, B.C., April 28, 1916, (F. Elliott).
5210. *Phyllobænus dislocatus* Say. Aweme, Man., July 2, 1911, (N. Criddle). New to Manitoba.

Ptilinidæ.

5329. *Cynocara scymnoides* Lec. Aweme, Man., June 7, 1912, (N. Criddle).
Cynocara bicolor Germ. Miami, Man., June 26, 1916, (J. B. Wallis).
Ptilinus pruinosa Csy. Darlingford, Man., July 17, 1916; issuing from dry aspen logs in stable, (W. R. Metcalfe).

Cloldæ.

- Octotemnus laevis* Csy. Bird's Hill, Man., Sept. 24, 1917, in fungus, (N. Criddle).
 5389. *Cis fuscipes* Mellié. Aweme, Man., May 29, 1905, (N. Criddle).
Bracycis brevicollis Csy. Aweme, Man., April 6, 1917, in birch bracket fungus, (E. Criddle).
 5404. *Ennearthron thoracicornis* Ziegl. Aweme, Man., Sept. 6, Oct. 10, 1917, in fungus, (N. Criddle).
Xestocis levettei Csy. Aweme, Man., April 23, 1916, (N. Criddle). New to Manitoba.

Sphindidæ.

5410. *Eurysphindus hirtus* Lec. Aweme, Man., (N. Criddle).

Scarabæidæ.

5552. *Aphodius brevicollis* Lec. Darlingford, Man., Oct. 10, 1915, (W. R. Metcalfe). New to Manitoba.

Cerambycidæ.

6179. *Xylotrechus colonus* Fab. Darlingford, Man., July 7, 1915, (W. R. Metcalfe).
 6180. *Xylotrechus sagittatus* Germ. Victoria Beach, Man., July 7, 1916, (J. B. Wallis). New to Manitoba.
 6253. *Anthophilax malachiticus* Hald. Chelsea, Que., May 28, 1917, (L. M. Stöhr).
 6279. *Bellamira scalaris* Say. Hemmingford, Que., Aug. 4, 1917, (C. E. Petch).
 6316. *Leptura subargentata* Kirby. Aweme, Man., July 4, 1909, (N. Criddle).
 6514. *Tetraopes quinque maculatus* Hald. Onah, Man., Aug. 26, 1910, (J. B. Wallis).

Chrysomelidæ.

6573. *Lemna trilineata* Oliv. Onah, Man., July 9, 1916, (J. B. Wallis).
 6632. *Cryptocephalus insertus* Hald. Stony Mountain, Man., July 31, 1916, (J. B. Wallis). New to Manitoba.
Pachybrachys praeclaris Weise. Aweme, Man., Sept. 10, 1916, (E. Criddle). New to Manitoba.
Pachybrachys carbonarius var. *janus* Fall. Aweme, Man., July 26, 1912, (E. Criddle). New to Manitoba.
Pachybrachis autolytus var. *wahsatchensis* Fall. Aweme, Man., June 24, July 7, 1908-12, (E. Criddle). New to Manitoba.
 6681. *Pachybrachys obsoletus* Suffr. Thornhill, Man., June 30; Onah, Man., July 9, 1916, (J. B. Wallis). New to Manitoba.
 6690. *Pachybrachys atomarius* Melsh. Thornhill, Man., July 11, 1916; previous records for Manitoba under this name were *peccans*, (Wallis).
Pachybrachys relictus Fall. Darlingford, Man., July 11, 1915, (W. R. Metcalfe). New to Manitoba.
 6712. *Diachus catarius* Suffr. Winnipeg, Man., June 1, 17, 1916, (J. B. Wallis). New to Manitoba.

6789. *Leptinotarsa (Doryphora) decemlineata* Say. Red Deer, Alta., 4 adults, Oct. 1, 1917; also reported from Calgary, Alta., (F. C. Whitehouse).
Calligrapha rhoda Knab. Bird's Hill, Man., Aug. 27, 1916, (J. B. Wallis).
New to Manitoba.
Calligrapha rowena Knab. Miami, Man., June 20, 1916, (J. B. Wallis).
New to Manitoba.
- 6891a. *Diabrotica fossata* Lec. Aweme, Man., July 29, 1917, (E. Criddle).
6932. *Oedionychis vians* Ill. Ogema, Sask., June 16, 1916, (N. Criddle); Spirit River, Alta., Aug. 20, 1916, (E. H. Strickland).
6932a. *Oedionychis scripticollis* Say. Calgary, Alta., May 10, 1915; Winnipeg, Man., April 24, 1916, (J. B. Wallis). New to Manitoba.
10421. *Halitica vicaria* Horn. Onah, Man., July 7, 1916, (J. B. Wallis). New to Manitoba.
10458. *Phyllotreta pusilla* Horn. Aweme, Man., Sept. 23, 1916, (N. Criddle).
New to Manitoba.
7031. *Phyllotreta robusta* Lec. Ogema, Sask., May 29, 1916, (N. Criddle).
10462. *Chatocnema opulenta* Horn. Aweme, Man., June 21, 1917, (N. Criddle).
7053. *Chatocnema pulicaria* Cr. Winnipeg, Man., June 10, 1916, (J. B. Wallis).
New to Manitoba.

Tenebrionidæ.

- Paratenetus crinitus* Fall. Aweme, Man., Sept. 25, 1916, (N. Criddle).
New to Manitoba.

Pythidæ.

7713. *Priognathus monilicornis* Rand. Aweme, Man., May 24, 1914, (N. Criddle).
New to Manitoba.

Mordellidæ.

7803. *Mordellistena biplagiata* Helm. Miami, Man., June 28, 1916, (J. B. Wallis); Aweme, Man., June 11, 1916, (N. Criddle). New to Manitoba.
Mordellistena cervicalis Lec. Aweme, Man., Sept. 7, 1916, (N. Criddle).
New to Manitoba.
7839. *Mordellistena pustulata* Melsh. Darlingford, Man., July 4, 1915, (W. R. Metcalfe); Miami, Man., June 26, 1916, (J. B. Wallis); Husavick, Man., July 26, 1916, (L. H. Roberts). New to Manitoba.

Anthicidæ.

7945. *Anthicus floralis* Linn. Stony Mountain, Man., July 31, 1916, (J. B. Wallis). New to Manitoba.
7956. *Anthicus ephippium* Laf. Husavick, Man., July 24, 26, 1916, (L. H. Roberts). New to Manitoba.
7976. *Anthicus pallens* Lec. Gimli, Man., July 19, 1916. (Frances M. Burridge).
New to Manitoba.

Pyrochroidæ.

7993. *Schizotus cervicalis* Newm. Aweme, Man., July 9, 1916, (N. Criddle).

Meloidæ.

8069. *Macrobasis segmentata* Say. Darlingford, Man., June 13, 1915. (W. R. Metcalfe). New to Manitoba.

Rhipiphoridæ.

8171. *Pelecotoma flavipes* Melsh. Darlingford, Man., July 17, 1916; emerging at the same time and place as *P. pruinosis* but from dry peeled aspen

poles, *pruinus* preferring the larger logs, (W. R. Metcalfe); Aweme, Man., July 26, 1906, (E. Criddle).

Curculionidæ.

- Apion huron* Fall. Aweme, Man., July 3, 1917, (N. Criddle).
 8381. *Apion pennsylvanicum* Boh. Aweme, Man., July 3, 1917, (N. Criddle).
 8405. *Apion walshii* Smith. Aweme, Man., Aug. 3, 1917, (N. Criddle).
 8419. *Apion tenuirostrum* Smith. Aweme, Man., July 6, 1917, (N. Criddle).
 8482. *Hypomolyx piceus* DeG. Montreal, Que., (J. H. Menard).
 8625. *Magdalis armicollis* Say. Aweme, Man., Aug. 30, 1916, (E. Criddle).
 8661. *Pseudanthrenus cratægi* Walsh. Hemmingford, Que., July 31, 1917, (C. E. Petch); only one record, namely, "Montreal Isl." in Quebec list.
 11030. *Chelonychus longipes* Dietz. Aweme, Man., Aug. 7, 1917, (E. Criddle).
 11041. *Orchestes parvicollis* Lec. Aweme, Man., July 3, 1917, (N. Criddle).
Ceutorhynchus oregonensis Dietz. Aweme, Man., (N. Criddle).
Cryptorhynchus lapathi L. Roberval, Lake St. John, Que., July, 1915, (G. Beaulieu).
 8832. *Caliodes nebulosis* Lec. Aweme, Man., (N. Criddle).
 * *Ceutorhynchus omissus* Fall. Aweme, Man., Sept. 23, (N. Criddle); Can. Ent. XLIX, 388.
 * *Ceutorhynchus echinatus* Fall. Aweme, Man., Sept. 25, (N. Criddle); Can. Ent., XLIX, 387.
 * *Ceutorhynchus invitus* Fall. Aweme, Man., Sept. 23, (N. Criddle); Can. Ent., XLIX, 388.
Ceutorhynchus neglectus Blat. Aweme, Man., July 20, 1917, (N. Criddle).
 * *Ceutorhynchus convexipennis* Fall. Aweme, Man., May 31, 1909, (E. Criddle); Aweme, Man., Sept. 8, (N. Criddle); Can. Ent. XLIX, 390.
 8863. *Rhinoncus pericarpus* Linn. Aweme, Man., Aug. 7, 1917, (E. Criddle).
 11102. *Baris inconspicua* Csy. Aweme, Man., July 9, 1916, (N. Criddle). New to Manitoba.

Ipidæ.

- * *Crypturgus borealis* Sw. Winnipeg, Man., (J. B. Wallis); found westward to the coast and south to Colorado, in species of *Picea*; Bull. 14, Ent. Br., Dom. Dept. Agr., p. 7.
 * *Phlaosinus canadense* Sw. Ste. Anne de Bellevue, Que., in *Thuja occidentalis*—the species of eastern Canada heretofore confused with *P. dendatus* Say; Bull. 14, Ent. Br., Dom. Dept. Agr., p. 8.
 * *Pseudohylesinus tsugæ* Sw. Stanley Park, Vancouver, B.C., in *Tsuga heterophylla*, widely distributed along the B. C. coast; Bull. 14, Ent. Br., Dom. Dept. Agr., p. 11.
 * *Pseudohylesinus sitchensis* Sw. Menzies Bay, B.C.; Port Renfrew, B.C., and Stanley Park, Vancouver, B.C.; Bull. 14, Ent. Br., Dom. Dept. Agr., p. 12.
 * *Pseudohylesinus grandis* Sw. Bull. 14, Ent. Br., Dom. Dept. Agr., p. 13. Mr. Swaine informs me that the types are from Saanichton, B.C.
 * *Pseudohylesinus obesus* Sw. Inverness, B.C.; Bull. 14, Ent. Br., Dom. Dept. Agr., p. 15.
 * *Lesperisinus cinereus* Sw. Hudson, Que., Bull. 14, Ent. Br., Dom. Dept. Agr., p. 15.
 9163. *Leperisinus aculeatus* Say. Miami, Man., June 28, 1916, (J. B. Wallis). New to Manitoba.

- * *Carphoborus carri* Sw. Edmonton, Alta., in *Picea canadensis*, (F. S. Carr); Aweme, Man., (N. Criddle); Bull. 14, Ent. Br., Dom. Dept. Agr., p. 16.
- * *Hylurgops lecontei* Sw. "British Columbia;" Bull. 14, Ent. Br., Dom. Dept. Agr., p. 16.
- * *Pseudocryphalus brittaini* Sw. Salmon Arm, B.C., (W. H. Brittain); Bull. 14, Ent. Br., Dom. Dept. Agr., p. 20.
- * *Pseudocryphalus criddlei* Sw. Aweme, Man., (N. Criddle); Bull. 14, Ent. Br., Dom. Dept. Agr., p. 21.
- * *Trypodendron borealis* Sw. Athabasca Landing, Alta.; Prince Albert, Alta., also "northern Saskatchewan;" Bull. 14, Ent. Br., Dom. Dept. Agr., p. 21.
- * *Trypodendron ponderosæ* Sw. "Southern coast and interior of British Columbia;" Bull. 14, Ent. Br., Dom. Dept. Agr., p. 22.
- * *Anisandrus populi* Sw. Ste. Anne de Bellevue, Que.; in region about Montreal Island and in the Ottawa valley; Bull. 14, Ent. Br., Dom. Dept. Agr., p. 22.
- * *Xyleborus canadensis* Sw. Isle Perrot, Que., Aug. 29, 1910; Bull. 14, Ent. Br., Dom. Dept. Agr., p. 24.
- * *Pityophthorus canadensis* Sw. "In twigs of *Pinus* in Ontario and Quebec;" Bull. 14, Ent. Br., Dom. Dept. Agr., p. 24.
- * *Pityophthorus nitidus* Sw. Tullochgoram, Que.; Bull. 14, Ent. Br., Dom. Dept. Agr., p. 25.
- * *Pityophthorus rhois* Sw. "Throughout the eastern parts of the United States and Canada;" Bull. 14, Ent. Br., Dom. Dept. Agr., p. 26.
- * *Pityophthorus confertus* Sw. Adams Lake, B.C., (Tom Wilson); Bull. 14, Ent. Br., Dom. Dept. Agr., p. 27.
- * *Pityophthorus granulatus* Sw. Manitoba, Quebec and Nova Scotia; Bull. 14, Ent. Br., Dom. Dept. Agr., p. 28.
- * *Pityophthorus ramiperda* Sw. Isle Perrot, Que.; Ste. Anne de Bellevue, Que.; Stoney Creek, Ont.; Bull. 14, Ent. Br., Dom. Dept. Agr., p. 28.
- * *Pityophthorus intextus* Sw. Athabasca Landing and northern Alberta, and north-eastern British Columbia; Bull. 14, Ent. Br., Dom. Dept. Agr., p. 29.
- * *Pityophthorus nudus* Sw. Ontario and Quebec; Bull. 14, Ent. Br., Dom. Dept. Agr., p. 30.
- * *Ips englemanni* Sw. Central British Columbia and Alberta; Bull. 14, Ent. Br., Dom. Dept. Agr., p. 30.
- * *Ips yohoensis* Sw. Yoho Valley, B.C.; Bull. 14, Ent. Br., Dom. Dept. Agr., p. 31.
- Ips borealis* Sw. Husavick, Man., July 13, 1915, (J. B. Wallis).
- * *Eccoptogaster tsugæ* Sw. Cherry Creek Valley, B.C.; Glacier, B.C.; Jasper Park, Alta.; Bull. 14, Ent. Br., Dom. Dept. Agr., p. 32.
- * *Eccoptogaster monticolæ* Sw. Arrowhead, B.C.; Creighton Valley, B.C.; Bull. 14, Ent. Br., Dom. Dept. Agr., p. 32.

Anthribidæ.

9207. *Allandrus bifasciata* Lec. Aweme, Man., Sept. 10, 1916, (E. Criddle).
New to Manitoba.

DIPTERA.

(Arranged according to a Catalogue of North-American Diptera, by J. M. Aldrich, Smithsonian Misc. Coll. XLVI, No. 1,444. The numbers refer to the pages in the catalogue.)

Tipulidæ.

78. *Discobola argus* Say. St. Hilaire, Que., June 22, 1916, (W. T. M. Forbes).
Addition to Quebec list.
81. *Elephantomyia westwoodi* O.S. Megantic, Que., July 6, 1916, (W. T. M. Forbes). First definite record from Quebec Province.
86. *Helobia hybrida*. Lake Park, near Sherbrooke, Que., July 5, 1916, (W. T. M. Forbes).
89. *Limnophila arcolata* O.S. Megantic, Que., July 6, 7, 1916, (W. T. M. Forbes). Addition to Quebec list.
90. *Limnophila toxoneura* O.S. Lake Park, near Sherbrooke, Que., July 5, 1916, (W. T. M. Forbes). Addition to Quebec list.
- * *Tricyphona autumnalis* Alex. Meach Lake, Que., Sept. 2, 1903, (J. Fletcher); Rostrevor, Ont., (not Quebec as in description), Sept. 2, 1907, (A. Gibson); Can. Ent. XLIX, 30.
93. *Amalopis calcar* O.S. In the Entomological Record for 1913, we recorded this species from Meach Lake, Que., and Rostrevor, Ont. On further study Mr. Alexander described the specimens, under the name *Tricyphona autumnalis*, in the Can. Ent. XLIX, 30. A note to this effect should be made in the 1913 Record and also in the Quebec List of Diptera by Winn and Beaulieu, published in 1915.
94. *Cylindrotoma splendens* Doane. Westholme, Van. Isl., B.C., May 17, 1917, (A. E. Cameron). New to Canada.
101. *Tipula caloptera* Loew. St. Hilaire, Que., June 27, 1916, (W. T. M. Forbes). Addition to Quebec list.
Tipula monticola Alex. Ottawa, Ont., June 18, 1916, (W. T. M. Forbes).
105. *Tipula umbrosa* Loew. Megantic, Que., July 6, 1916, (W. T. M. Forbes).
Addition to Quebec list.

Culicidæ.

- * *Aedes mimensis* Dyar. Kaslo, B.C.; Aweme, Man., June 13, July 10, (N. Criddle); Insecutor Inscitiæ Menstruus, V. 116.
- * *Aedes prodotes* Dyar. Banff, Alta., 1908, (N. B. Sanson); Insecutor Inscitiæ Menstruus, V. 118.
- * *Aedes acrophilus* Dyar. Lake Louise, Laggan, Alta., Aug. 18, 1916, (Dyar and Caudell); Insecutor Inscitiæ Menstruus, V. 127.

Simuliididæ.

169. *Prosimulium hirtipes* Fr. Victoria, Vanc. Isl., B.C., April 15, (A. E. Cameron).

Stratiomyidæ.

179. *Sargus nubeculosus* Zett. Outremont, Que., Aug. 30, 1917; Joliette, Que., July 8, 1917, (C. J. Ouellette). Addition to Quebec list.
Nemotelus bonnarius Jhn. Aweme, Man., Aug. 24, 1916, (N. Criddle).
First record for Manitoba.

Tabanidæ.

202. *Tabanus cinctus* Fab. Ironside, Que., July 20, 1916. (L. M. Stöhr). Addition to Quebec list.

203. *Tabanus fratellus* Will. Banff, Alta., Aug. 10, 1915, (N. B. Sanson).
206. *Tabanus procyon* O. S. Goldstream, near Victoria, B.C., (E. H. Blackmore); North Bend, B.C., June 6, (S. Hadwen). These are the only records we have for Canada.

Leptidæ.

215. *Leptis ochracea* Loew. Montreal, Que., June 27, 1917, (C. J. Ouellette).
Addition to Quebec list.

Bombyliidæ.

232. *Anthrax lateralis* Say. Ironside, Que., Aug., 1916, (L. M. Stöhr).
236. *Bombylius validus* Loew. Ironside, Que., June 14, 1916, (L. M. Stöhr).
238. *Ploas nigripennis* Loew. Goldstream, near Victoria, B.C., July 4, 1916, (E. H. Blackmore).

Asilidæ.

- Leptogaster virgatus* Coq. St. Eustache, Que., Aug. 22, 1917, (C. J. Ouellette). Dr. Aldrich, who determined the specimen reported, "I believe new to Canada; at least I find no published record."
260. *Cyrtopogon nebulo* O.S. Victoria, B.C., June 5, 10, 16, 1916, (R. C. Treherne).
272. *Laphria pubescens* Will. Banff, Alta., Aug. 11, 1916, (N. B. Sanson).
273. *Laphria xanthippe* Will. Banff, Alta., June 23, 1914, (N. B. Sanson).

Dolichopodidæ.

- * *Sympycnus canadensis* Van Duzee. Fort Erie, Ont., June 6; Can. Ent., XLIX, 339.
297. *Scellus exustus* Walk. St. Eustache, Que., Aug. 18, 1917, (C. J. Ouellette).
Addition to Quebec list.
299. *Dolichopus batillifer* Loew. Joliette, Que., July 10, 1917, (C. J. Ouellette).
Addition to Quebec list.

Phoridæ.

337. *Aphiochæta rufipes* Mg. Banff, Alta., June 21, 1915, (N. B. Sanson).

Syrphidæ.

346. *Microdon globosus* Fab. Joliette, Que., July 15, (C. J. Ouellette). This appears to be the only definite record which we have for Quebec Province.
346. *Microdon tristis* Loew. Ironside, Que., July 20, 1916, (L. M. Stöhr).
353. *Chilosia occidentalis* Will. Lillooet, B.C., 8,000 feet, (A. W. A. Phair).
362. *Leucozona lucorum* L. Ironside, Que., June 17, 1916, (L. M. Stöhr).
Previously recorded from Quebec Province from Levis.
Syrphus rectus O. S. Mount Royal, Que., (C. J. Ouellette). Addition to Quebec list. This was considered a synonym of *ribesii* until lately, when Shannon revived it—Proc. Biol. Soc. Wash., 1916, 201—J. M. A.
375. *Rhingia nasica* Say. Aweme, Man., Aug. 21, 1916, (N. Criddle).
375. *Hammerschmidia ferruginea* Fallen. Ironside, Que., May 31, 1916, (L. M. Stöhr). Addition to Quebec list.
383. *Pyritilis montigena* Hunter. Victoria, B.C., April 12, 1917, (A. E. Cameron).
Eumerus strigatus Fall. Montreal, Que., in a greenhouse, Feb. 5, 1917, (J. I. Beaulne). Addition to Quebec list.

396. *Pterallustes perfidiosus* Hunter. Ironside, Que., May 11, 1916, (L. M. Stöhr). Addition to Quebec list.
400. *Chrysochlamys crocus* O. S. Victoria, B.C., June 6, 1916, (R. C. Treherne).
400. *Chrysochlamys dives* O. S. Aweme, Man., July 7, 1916, (N. Criddle).
401. *Brachypalpus frontosus* Loew. Ironside, Que., June 7, 1916, (L. M. Stöhr).
401. *Crioprora alopex* O. S. Victoria, B.C., April 19-30, 1913, (E. H. Blackmore).
402. *Criorhina armillata* O. S. Lillooet, B.C., (A. W. A. Phair).

Tachinidæ.

438. *Leucostoma atra* Twms. St. Eustache, Que., Aug. 10, 1917, (C. J. Ouellette). Addition to Quebec list.
459. *Exorista spinipennis* Coq. Ironside, Que., (L. M. Stöhr). Addition to Quebec list.
476. *Metopia leucocephala* Rossi. Joliette, Que., July 20, 1917; St. Eustache, Que., Aug. 15, 1917, (C. J. Ouellette). Addition to Quebec list.

Sarcophagidæ.

- Sarcophaga atlanis* Ald. Outremont, Que., Aug. 28, 1917, (C. J. Ouellette). New to Canada.
511. *Sarcophaga cimicis* Twms. Mt. Royal, Que., Aug. 2, 1917, (C. J. Ouellette). Addition to Quebec list.
- Sarcophaga hamorrhoidalis* Mg. Outremont, Que., Sept. 17, 1917, (C. J. Ouellette). Addition to Quebec list.
512. *Sarcophaga hunteri* Hgh. St. Eustache, Que., Aug. 17, 1917, (C. J. Ouellette). New to Canada.
- Sarcophaga latisetosa* Park. St. Eustache, Que., Aug. 20, 1917, (C. J. Ouellette). Addition to Quebec list.
513. *Sarcophaga pallinervis* Thorn., (*communis* Park). St. Eustache, Que., Aug. 18, 1917; Mt. Royal, Que., Aug. 29, 1917, (C. J. Ouellette). Addition to Quebec list.
- Sarcophaga sinuata* Mg. St. Eustache, Que., Aug. 18, 1917; Outremont, Que., June 28, 1917, (C. J. Ouellette). Addition to Quebec list.

Muscidæ.

522. *Lucilia sericata* Mg. Outremont, Que., Sept. 10, 1917; Aug. 28, 1917, (C. J. Ouellette). Addition to Quebec list.
523. *Lucilia sylvarum* Mg. St. Eustache, Que., Aug. 18, 1917; Joliette, Que., July 10, 1917; Outremont, Que., Aug. 30, 1917, (C. J. Ouellette). Addition to Quebec list.

Anthomyidæ.

- Paralimnophora brunneisquama* Mall. Joliette, Que., July 15, (C. J. Ouellette).
545. *Spilogaster nitens* Stein. Dr. Aldrich in a letter October 12, 1917, informs us that in examining the Hough collection at the Univ. of Chicago, he discovered that the type of this species is from Toronto, Ont., not Massachusetts as Stein's paper gives it. He also remarks that he found the species to be a true *Pogonomyia* and that it has since been described by Malloch as *Pogonomyia flavinervis*.

Scatophagidæ.

- Spathiophora fascipes* Beck. St. Eustache, Que., Aug. 18, 1917, (C. J. Ouellette). Not hitherto reported from Canada. Dr. Aldrich who

determined the specimen states (in litt, Nov. 26, 1917), "*S. fascipes* Becker is a European species that has been found in North America in but two places before that I know of—Hine collected it in some numbers at Cedar Point, near Sandusky, Ohio, and it was identified for him by Coquillett, and I have a specimen from South Haven, Mich." The species was described in Berliner Ent. Zeitsch, XXXIII, 160, 1889.

Scelomyzidae.

579. *Tetanocera pallida* Loew. Aweme, Man., July 18, 1916, (N. Criddle).
 580. *Tetanocera saratogensis* Fitch. Aweme, Man., July 18, 1916, (N. Criddle).
 581. *Sepedon armipes* Loew. St. Eustache, Que., Aug. 18, 1917; Mt. Royal Que., Sept. 20, 1917, (J. Ouellet). Mr. Beaulieu has taken the species at Ottawa, Ont.

Sapromyzidae.

Lonchæa vaginalis Fall. Outremont, Que., Aug. 28, 1917, (C. J. Ouellette).
 New to Canada.

586. *Sapromyza notata* Fall. Aweme, Man., July 18, 1916, (N. Criddle).

Ortalidae.

589. *Rivellia flavimanus* Loew. Aweme, Man., July 13, 1916, (N. Criddle).
 589. *Rivellia viridulans* Desv. Mt. Royal, Que., June 30, 1917; Joliette, Que., July 20, 1917, (J. Ouellet). Addition to Quebec list.
 591. *Tephronota canadensis* Jns. Aweme, Man., July 13, 1916, (N. Criddle).
Stenomyia fasciapennis Cr. Aweme, Man., June 13, 1916, (N. Criddle).
 Described from Minnesota.

Trypetidae.

606. *Rhagoletis pomonella* Walsh. Royal Oak, Victoria, Vanc. Isl., B.C., Aug. 15, 1917, (W. Downes).
 609. *Eurosta comma* Wied. Maryfield, Sask., Aug. 31, 1916, (N. Criddle).
 612. *Euaresta aqualis* Loew. St. Eustache, Que., Aug. 22, 1917, (C. J. Ouellette). Addition to Quebec list.

Sepsidae.

- * *Sepsis violacea hecati* Melan. & Spuler. Keremeos, B.C., (A. L. Melander); Bull. 143, Wash. Agr. Exp. Stn., p. 22.
 * *Sepsis signifer* Melan. & Spuler. Nelson, B.C., (A. L. Melander); Bull. 143, Wash. Agr. Exp. Sta., p. 26.
 * *Sepsis signifer curvitibia* Melan. & Spuler. Nelson, B.C., (A. L. Melander); Bull. 143, Wash. Agr. Exp. Stn., p. 28.
 * *Sepsis neocynipsea* Melan. & Spuler. Waubanic, Parry Sound, Ont., (H. S. Parish); Bull. 143, Wash. Agr. Exp. Stn., p. 29.
 * *Themira malformans* Melan. & Spuler. Hudson Bay; Bull. 143, Wash. Agr. Exp. Stn., p. 46.

Ephydriidae.

- * *Notiphila olivacea* Cr. Toronto, Ont., July 4, 1913, (M. C. Van Duzee); Trans. Amer. Ent. Soc., XLIII, 52.
 628. *Ochthera mantis* DeG. Ironside, Que., April 19, 1912, (L. M. Stöhr).
 Addition to Quebec list.

Oscinidae.

- Chlorops certima* Adams. Aweme, Man., Aug. 24, 1916, (N. Criddle).
 633. *Diplotoxa pulchripes* Loew. Ogema, Sask., June 16, 1916, (N. Criddle).

634. *Diplotoxa recurva* Adams. Aweme, Man., Aug. 12, 1916; Maryfield, Sask., (N. Criddle).
 634. *Chloropisca variceps* Loew. Aweme, Man., Aug. 24, 1917, (N. Criddle).
 635. *Epichlorops exilis* Coq. Aweme, Man., July 30, Aug. 11, 1917, (N. Criddle).
Elachiptera aliena Beck. Aweme, Man., Sept. 11, 1916, (N. Criddle).
 New to Canada.
 636. *Elachiptera eunota* Loew. Aweme, Man., Aug. 24, 1916, (N. Criddle).
Elachiptera planicollis Beck. Aweme, Man., Aug. 24, Sept. 18, 1916,
 swept from sedges, (N. Criddle).
Oscinis infesta Beck. Aweme, Man., Aug. 24, 1916, (N. Criddle). New
 to Canada.
Oscinis sulfurihalterata End. Aweme, Man., July 21, Aug. 12, (N. Criddle).

Geomyzidæ.

Diatata 10-guttata Walk. Aweme, Man., Sept. 4, 1916, (N. Criddle).

Agromyzidæ.

- Agromyza quadrisetosa* Mall. Ogema, Sask., June 16, 1916, (N. Criddle).
Agromyza subangulata Mall. Aweme, Man., May 28, 1916, (N. Criddle).
Agromyza laterella Zett. Aweme, Man., July 18, 1916, (N. Criddle).
 648. *Agromyza longipennis* Loew. Aweme, Man., July 29, 1916, (N. Criddle).
Pseudodinia nitida Mall. Aweme, Man., July 18, 29, 1916, (N. Criddle).

HYMENOPTERA.

Tenthredinidæ.

- * *Emphytus mellipes albolabris* Rohwer. Departure Bay, Vanc. Isl., B.C.,
 July 5, 1913, (E. M. Walker); Proc. U.S.N.M., 53, 152.

Braconidæ.

- * *Wesmaelia americana* Myers. "Ottawa, Can."; Proc. U.S.N.M., 53, 293.
 * *Bracon montrealensis* Morr. Montreal, Que.; Proc. U.S.N.M., 52, 326.

Ichneumonidæ.

- * *Pseuderipternus brevicauda* Cushman. "Canada"; Proc. U.S.N.M., 53,
 506.
Euceros cooperii Cr. Aweme, Man., July 6, 1917, (N. Criddle).
 * *Bathytrix tibialis* Cushman. Vancouver, B.C.; Proc. U.S.N.M., 53, 458.

Pteromalidæ.

- * *Eupteromalus tachinæ* Gahan. Guelph, Ont., (A. W. Baker); Proc.
 U.S.N.M., 53, 211.

Chalcididæ.

- * *Lamprostatus canadensis* Girault. Banff, Alta., (E. A. Schwarz); Psyche,
 XXIV, 96.

Formicidæ.

- * *Leptothorax muscorum* var. *septentrionalis* Wheeler. Banff, Alta., (C. G. Hewitt); Emerald Lake, B.C., (W. M. Wheeler); Proc. Amer. Acad. Sc.,
 52, 511.

- * *Leptothorax emersoni* subsp. *hirtipilis* Wheeler. Banff, Alta.; Proc. Amer. Acad. Sc., 52, 515.
- * *Lasius flavus* subsp. *claripennis* Wheeler. Banff, Alta.; Proc. Amer. Acad. Sc., 52, 527.
- * *Formica fusca* subsp. *pruinosa* Wheeler. Emerald Lake, B.C., Aug. 12-15; Field, B.C.; Banff, Alta.; (W. M. Wheeler); Proc. Amer. Acad. Sc., 52, 548.
- * *Formica hewitti* Wheeler. Emerald Lake, B.C.; Field, B.C., Laggan, Alta., (W. M. Wheeler); Proc. Amer. Acad. Sc., 52, 552.
- * *Formica truncicola integra* var. *subcaviceps* Wheeler. Dog Lake, Penticton, B.C., (C. G. Hewitt); Proc. Amer. Acad. Sc., 52, 540.
- * *Polyergus rufescens* subsp. *breviceps* var. *fusciventris* Wheeler. Treesbank, Man., (C. G. Hewitt); Proc. Amer. Acad. Sc., 52, 555.

Eumenidæ.

- * *Eumenes crassicornis* Isely. Goldstream, B.C.; Annals Ent. Soc. Amer., X, 362.

Vespidæ.

- Vespa austriaca* Pz. Ironside, Que., June 18, 1916, two females, (L. M. Stöhr).

Sphecidæ.

- Thyreopus argus* Pack. Chelsea, Que., July, 1917, males, (L. M. Stöhr).
Thyreopus cingulatus Pack. Aweme, Man., July 21, 1914, male, female, (N. Criddle).
Crabro vierecki H. S. Smith. Lethbridge, Alta.; Nelson, B.C., July, 1916, (F. W. L. Sladen).
Cerceris rufinoda crucis Vier. & Ckll. Not "*crucia*" as in Ent. Rec. for 1917.

Bembicidæ.

- * *Bembix comata* Parker. Vancouver, B.C.; Proc. U.S.N.M., 52, 100.

Anthophoridæ.

- Anthophora simillima* Cr. Lillooet, B.C., May 14, 1916, (E. M. Anderson); Invermere, B.C., April 25, 1915, (G. E. Parham).
Anthophora pacifica Cr. Victoria, B.C., April 25, 1916, (R. C. Treherne).
Anthophora peritomæ Ckll. Lethbridge, Alta., July 22, 1916; Medicine Hat, Alta., August 20, 1917, (F. W. L. Sladen).
 * *Tetralonia hirsutissima* Ckll. British Columbia; Ann. Mag. Nat. Hist., June, 1916, p. 428.

Megachilidæ.

- Chelynia rubi* Ckll. Not "*rubri*" as in Ent. Record for 1917.
Megachile parallela Smith. Not "*parallela* Ckll." as in Ent. Record for 1917.
Megachile (*Xanthosarus*) *perihirta* Ckll. Cochrane, Ont., Aug. 9, 1917; nesting gregariously in a nearly new, bare, gravel railway embankment (F. W. L. Sladen); Athabasca, Alta., Aug. 12, 1915, (E. H. Strickland); this species was found in large numbers actively tripping the flowers of alfalfa at Keremecos, B.C., and Summerland, B.C., in July, 1917. The Athabasca and Cochrane females are darker than the British Columbia specimens, having much black hair on the sixth dorsal segment. (F. W. L. S.).

Bombidæ.

- Bombus kirbyellus* Frank. Banff, Alta., Aug., 1916, (N. B. Sanson).
Bombus polaris Frank. Banff, Alta., Aug., 1916, (N. B. Sanson).

HEMIPTERA.

(Arranged according to a Check List of the Hemiptera—excepting the Aphididæ, Aleurodidæ and Coccidæ—of America, north of Mexico, by E. P. Van Duzee; New York Entomological Society, 1916.)

Aphididæ.

- Hamamelistes spinosus* Shimer. Vineland, Ont., June 22, 1914, on *Betula papyrifera*, (W. A. Ross).
Euceraphis betulæ Koch. Bowmanville, Ont., July 21, 1913, (W. A. Ross).
Drepanosiphum platanoides Schr. Guelph, Ont., June 20, 1915, on maple, (W. A. Ross).
Myzocallis bellus Walsh. Ottawa, Ont., Sept. 4, 1917, on *Quercus*, (C. B. Hutchings).
Myzocallis asclepiadis Monell. Ottawa, Ont., Sept. 1, 1917, on milkweed, (C. B. Hutchings).
Nectarosiphum rubicola Oestlund. Bowmanville, Ont., 1913, (W. A. Ross); Ottawa, Ont., July 26, 1917, (C. G. Hewitt).
Macrosiphum tiliæ Monell. Vineland, Ont., Sept. 6, 1917, on basswood, (W. A. Ross).
Rhopalosiphum berberidis Kalt. Bowmanville, Ont., June 17, 1913, on barberry, (W. A. Ross).
Myzus (Ovatus) mespili v.d.G. Vineland Station, Ont., June 8, 1917, on *Pyrus japonica*, (W. A. Ross).

Aleurodidæ.

- * *Aleuroplatus berbericolus* Q. & B. Kaslo, B.C., Jan. 27, 1908, on *Berberis aquifolium*, (J. W. Cockle); Proc. U.S.N.M., 51, 383.

Pentatomidæ.

139. *Cænus delius* Say. Covey Hill, Que., May 31, 1914, (C. E. Petch).

Aradidæ.

361. *Aradus quadrilineatus* Say. Ironside, Que., (L. M. Stöhr).

Tingididæ.

665. *Physatocheila plexa* Say. Ironside, Que., (L. M. Stöhr).

Miridæ.

1109. *Dicyphus famelicus* Uhl. Ironside, Que., April 18, 1917, (L. M. Stöhr).
 * *Lygus vanduzeei* Knight. Parry Sound, Ont., July and August; (H. S. Parish); Truro, N.S., July 8, Sept. 19, Oct. 11; Kentville, N.S., July 2, Aug. 6, 10, Sept. 24, Oct. 5; Smith's Cove, N.S., July 15, Sept. 14, (W. H. Brittain); Cornell Univer. Agric. Exp. St., Bull. 391, 565.
 * *Lygus vanduzeei* var. *rubroclarus* Knight. Saguenay River, Que.; Smith's Cove, N.S., May 8 to June 6, June 23, July 15; Kentville, N.S., June 24, Sept. 24, (W. H. Brittain); Cornell Univ. Agr. Exp. St., Bull. 391, 567.
 * *Lygus humeralis* Knight. Bear Lake, B.C., July 20; Ainsworth, B.C., July 2; Revelstoke, B.C., July 1, 5, (J. C. Bradley); Cornell Univ. Agric. Exp. St., Bull. 391, 570.

- * *Lygus columbiensis* Knight. Fry Creek, B.C., July 23; Cornell Univ. Agr. Exp. St., Bull. 391, 371.
- * *Lygus rubicundus* var. *winnipegensis* Knight. Winnipeg, Man., May 7, 1910, (J. B. Wallis); Cornell Univ. Agr. Exp. St., Bull. 391, 591.
- * *Lygus alni* Knight. Wolfville, N.S.; Cornell Univ. Agric. Exp. St., Bull. 391, 608.
- * *Lygus tiliae* Knight. Ottawa, Ont., June 29; Cornell Univ. Agric. Exp. St., Bull. 391, 613.
- * *Lygus omnivagus* Knight. Parry Sound, Ont., July 24, Aug. 7, (H. S. Parish); Cornell Univ. Agric. Exp. St., 391, 627.
- * *Lygus canadensis* Knight. Parry Sound, Ont., July 10, (H. S. Parish); Cornell Univ. Agric. Exp. St., 391, 634.
- * *Lygus ostryæ* Knight. Parry Sound, Ont., Aug. 6-8, (H. S. Parish); Cornell Univ. Agri. Exp. St., Bull. 391, 635.

Fulgoridæ.

2466. *Scolops sulcipes* Say. Hemmingford, Que., June 24, 1916, (C. E. Petch).
 2549. *Cixius stigmatus* Say. Hemmingford, Que., July 9, 1917, (C. E. Petch).

ODONATA.

(Arranged according to Muttkowski's Catalogue of the Odonata of North America. The numbers refer to the pages in the catalogue.)

Coenagrionidæ.

- 37. *Lestes congener* Hagen. St. Andrews, N.B., Sept. 16, 1917, (A. G. Huntsman).
- 37. *Lestes disjunctus* Selys. Dingwall, Aspy Bay, C.B., July 27, 1917, (A. G. Huntsman); Le Pas, Man., July 29, 1917; M. 214, H. B. Ry., Man., July 24, 1917, (J. B. Wallis).
- 39. *Lestes uncatus* Kirby. Neil's Harbour, C.B., July 29, 1917, (A. G. Huntsman).
- 55. *Enallagma calverti* Morse. Vancouver, B.C., June 14, July 1, 1917, (E. H. Blackmore).
- 56. *Enallagma civile* (Hagen). Plateau River, Cheticamp, C.B., July 27-Aug. 4, 1917, (A. G. Huntsman). New to Nova Scotia list.
- 56. *Enallagma clausum* Morse. Dauphin Lake, Man., July-August, 1917, (Mrs. W. W. Hippisley). New to Canada.
- 57. *Enallagma cyathigerum* (Charp.) Chilcotin, B.C., June 25, 1915, (W. A. N.); Cranbrook Dist., B.C., May 17, 1915; Le Pas, Man., July 7, 1917, (J. B. Wallis).
- 59. *Enallagma ebrium* (Hagen). Le Pas, Man., July 29, 1917, (J. B. Wallis).
- 60. *Enallagma hageni* (Walsh.). Dingwall, Aspy Bay, C.B., July 27, 1917, (A. G. Huntsman).
- 65. *Nehalennia irene* Hagen. Red Deer, Alta., July 1-8, (F. C. Whitehouse). New to Alberta list.
- Coenagrion angulatum* E. M. Walker. Le Pas, Man., July 1, 1917, (J. B. Wallis).
- 66. *Coenagrion interrogatum* (Selys.). Nordegg, Alta., July 19, (F. C. Whitehouse). New to Alberta and most westerly record. M. 332, H. B. Ry., July 17, 1917; M. 256, H. B. Ry., Man., July 12, 1917, (J. B. Wallis). New to Manitoba.

66. *Coenagrion resolutum* (Hagen). Le Pas, Man., July 1, 1917; M. 214, H. B. Ry., Man., July 8, 24, 27, 1917; M. 332, H. B. Ry., Man., July 17, (J. B. Wallis); Chilcotin, B.C., June 25, 1915, (W. A. N.). First British Columbia record.
66. *Amphiagrion saucium* (Burm.). Banff, Alta., July 2, 1913, (E. M. Walker).

Aeshnidae.

76. *Cordulegaster diastatops* (Selys.) De Grassi Point, Ont., June 12, 1917, June 21, 1917, (E. M. Walker).
77. *Cordulegaster maculatus* Selys. De Grassi Point., Ont., June 19-24, 1917, (E. M. Walker); Algonquin Park, Ont., July 17, 1917, (E. M. Walker).
84. *Ophiogomphus colubrinus* Selys. M. 332 and 334, N. B. Ry., Man., July 20, 1917, (J. B. Wallis). New to Manitoba.
91. *Gomphus cornutus* Tough. Carlsbad Springs, Ont., June 20, 1908, (C. H. Young).
109. *Aeshna canadensis* E. M. Walker. Dingwall, Aspy Bay, C.B., July 27, 1917, (A. G. Huntsman).
- Aeshna caerulea septentrionalis* Burm. Hopedale, Labrador, Aug. 1917, (W. W. Perrett).
110. *Aeshna eremita* Scudd. Dingwall, Aspy Bay, C.B., July 27, 1917, (A. G. Huntsman).
111. *Aeshna interrupta interrupta* E. M. Walker. Dingwall, Aspy Bay, C.B., July 27, 1917, (A. G. Huntsman).
111. *Aeshna juncea* (Linn.) Hopedale, Labrador. Aug. 1917, (W. W. Perrett).
114. *Aeshna sitchensis* Hagen. Hopedale, Labrador, Aug. 1917, (W. W. Perrett); Amherst Id., Magdalen Islands, Que., July 15, 1917, (A. G. Huntsman).
114. *Aeshna subarctica* E. M. Walker. Amherst Id., Magdalen Islands, Que., July 15, 1917, (A. G. Huntsman).
114. *Aeshna umbrosa occidentalis* E. M. Walker. Prospect Lake, B.C., Aug. 30, 1917, (W. Downes).

Libellulidae.

128. *Williamsonia lintneri* (Hagen). Mer Bleue, near Ottawa, Ont., May 25, 1908, June 4, 1908, (C. H. Young). New to Ontario list.
128. *Cordulia shurtleffi* Scudd. De Grassi Point, Ont., June 14, 1917, (E. M. Walker).
129. *Somatochlora albicincta* (Burm.). Nordegg, Alta., July 12-19, 1917, 4,000-6,500 feet; also nymph believed to be this on circumstantial evidence, previously unknown, (F. C. Whitehouse); Nain, Labrador, Aug. 13, 1917, Aug. 20, (Simon); Hopedale, Labrador, Aug. 1917, (W. W. Perrett).
129. *Somatochlora cingulata* (Selys.). Nordegg, Alta., July 15, 17, 1917, 6,500 feet, (F. C. Whitehouse). New to Alberta list. M. 256, H. B. Ry., Man., July 12, 1917; M. 332, H. B. Ry., Man., July 16, 1917, (J. B. Wallis). New to Manitoba list.
130. *Somatochlora forcipata* (Scudd.). Hopedale, Labrador, Aug. 1917. (W. W. Perrett). New to Labrador.
130. *Somatochlora franklini* (Selys.). Nordegg, Alta., 6,500 feet. July 11-17, 1917, (F. C. Whitehouse). New to Alberta list. Hopedale, Labrador.

- Aug. 1917, (W. W. Perrett); Le Pas, Man., July 1, 1917, M. 214, H. B. Ry., Man., July 7-9, 1917; M. 332, July 14-19, 1917; M. 256, July 12, 1917, (J. B. Wallis).
131. *Somatochlora hudsonica* (Hagen). Sucker River, Thunder Bay District, Ont., July 21, 1917, (Mrs. G. K. Jennings). New to Ontario list. Red Deer, Alta., July 1-9, 1916; July 1, 1917; Nordegg, Alta., July 19, 1917, (F. C. Whitehouse).
131. *Somatochlora minor* Calvert. M. 256, H. B. Ry., Man., July 12, 1917, (J. B. Wallis); De Grassi Point, Ont., (E. M. Walker); Nordegg, Alta., July 11-18, 1917, 4,000-6,500 feet, (F. C. Whitehouse). New to Alberta list.
132. *Somatochlora semicircularis* (Selys.). Nordegg, Alta., July 16, 1917, (F. C. Whitehouse).
132. *Somatochlora septentrionalis* Hagen. Hopedale, Labrador, Aug., 1917, (W. W. Perrett); M. 332, H. B. Ry., Man., July 19, 1917, (J. B. Wallis). New to Manitoba list. Nordegg, Alta., July 18, 1917, 4,000 feet, (F. C. Whitehouse). New to Alberta list.
166. *Leucorrhinia hudsonica* (Selys.). Cranbrook Dist., May 17, 1915, (Coll.?). New to British Columbia list.
167. *Leucorrhinia intacta* Hagen. Saanich Dist., B.C., June 12, July 20, 1917; Elk Lake, Royal Oak, B.C., July 11, 1917, (W. Downes); Vernon Dist., July 6, 1916; Alberni, B.C., July 22, 1915, (W. R. C.). New to British Columbia list.

COLLEMBOLA.

The following species of Collembola were collected at Arnprior, Ont., in 1917, by Mr. Charles Macnamara, who is making a special study of these insects.

- Achorutes packardii* Folsom.
Achorutes humi Folsom.
Xenylla maritima Tullberg.
Pseudachorutes complexus MacGillivray.
Neanura muscorum Templeton.
Podura aquatica Linn. (Red colour variety.)
Onychiurus ramosus Folsom.
Onychiurus fimetaria (Linn.) Lubbock.
Isotoma olivacea Tullberg.
Isotoma quadrioculata Tullberg.
Isotoma cinerea Nic.
Tomocerus bidentatus Folsom.
Tomocerus flavescens separatus Folsom.
Papirius pini Folsom.
Sminthurus hortensis Fitch.
Sminthurus hortensis juvenilis Fitch.
Sminthurus spinatus MacGillivray.

ARANEIDA.

(Arranged according to Bank's Catalogue of Nearctic Spiders, U.S.N.M., Bull. 72. The numbers refer to the pages in the catalogue.)

Drassidæ.

- * *Pacilochroa columbiana* Em. Departure Bay, Van. Isl., B.C., 1913, (T. B. Kurata); Can. Ent., XLIX, 269.
- 9. *Gnaphosa conspersa* Thor. Aweme, Man., (N. Criddle).

Agelenidæ.

- 15. *Cicurina arcuata* Keys. Aweme, Man., (N. Criddle).

Theridiidæ.

- 20. *Theridium zelotypum* Em. Truro, N.S., and West River, N.S., (R. Matheson).
- * *Aræoncus patellatus* Em. Metlakatla, B.C., (J. H. Keen); Can. Ent., XLIX, 262.
- Lophocarenum sculptum* Em. Metlakatla, B.C., (J. H. Keen); Can. Ent., XLIX, 261.
- * *Gonglydium macrochelid* Em. Banff, Alta., (N. B. Sanson); Can. Ent., XLIX, 263.
- Gonglydium curvitaris* Em. Sulphur Mt., Banff, Alta., on snow, April, 1917, (N. B. Sanson). Described from Mt. Whiteface, Adirondacks, N.Y.

Linyphiidæ.

- * *Diplostyla brevipes* Em. Metlakatla, B.C., (J. H. Keen); Can. Ent., XLIX, 267.
- * *Diplostyla keenii* Em. Metlakatla, B.C., (J. H. Keen); Can. Ent., XLIX, 267.
- * *Microneta pallida* Em. Departure Bay, Vanc. Isl., B.C., 1913, (T. B. Kurata); Can. Ent., XLIX, 265.
- * *Microneta orcina* Em. Inverness, B.C., (J. H. Keen); Can. Ent., XLIX, 266.

Epeiridæ.

- 39. *Zilla atrica* Koch. Digby, N.S., and Truro, N.S., (R. Matheson).
- 41. *Epeira cavatica* Keys. Hampton, N.B., and Hillsborough, N.B., (R. Matheson).

Thomisidæ.

- * *Philodromus canadensis* Em. "Montreal, Ottawa, and westward to Lake Nipigon and Prince Albert"; Can. Ent., XLIX, 270.

Lycosidæ.

- Lycosa wrightii* Em. Aweme, Man., (N. Criddle).
- 60. *Pardosa tachypoda* Thor. Arnprior, Ont., (C. Macnamara).
- * *Pardosa metlakatla* Em. Metlakatla, B.C., (J. H. Keen); Mountains north of Vancouver, B.C., (G. W. Taylor); Can. Ent., XLIX, 268.
- * *Pardosa vancouveri* Em. Departure Bay, Vanc. Isl., B.C., and Vancouver, B.C., (T. B. Kurata); Can. Ent., XLIX, 269.

Attidæ.

- * *Chalcoscirtus carbonarius* Em. Simpson Summit, 7,000 feet, near Banff, Alta.; Can. Ent., XLIX, 271.

INDEX.

	PAGE		PAGE
<i>Alypia octomaculata</i>	42	Insects as carriers of plant diseases	86
<i>Anosia plexippus</i>	21	<i>Itonida tritici</i>	29
<i>Anthophilax malachiticus</i>	23	Leaf bug, four-lined	20
<i>Aphis</i> , black cherry	59	<i>Leptura</i> , species from Peterborough, ...	26
“ grain	29	<i>Linyphia nearctica</i>	77
“ potato	19	<i>Liopus variegatus</i>	25
Apple and thorn skeletonizer	44	Literature, recent entomological... ..	100
Apple scab, dusting for	80	<i>Macrobasis unicolor</i>	18
Apple-tree caterpillar, red humped	20, 48	<i>Macrosiphum granarium</i>	30
<i>Asparagus beetle</i>	28	“ <i>solanifoli</i>	19
Bean root maggot	28	Maheux, Georges, article by	33
Blackberry leaf-miner	36	<i>Merium proteus</i>	24
Blister beetle, ash-gray	18	<i>Metallus bethunei</i>	36
Bud-moth	20	<i>Microclytus gazellula</i>	23, 72
Cabbage butterfly, migration of ...	21	“ <i>gibbulus</i>	23, 25, 71
Cabbage root maggot	18, 28	Migration of butterflies	21
<i>Carpocapsa pomonella</i>	39	Milk production, effects of stable	
Carrot rust-fly	19	and horn-fly attacks on	91
<i>Cerambycidae</i>	23, 71	<i>Monarch butterfly</i> , migrations of ...	21
<i>Ceramica picta</i>	19, 38, 96	<i>Monohammus marmorator</i>	27
Cherry aphid, black	59	Mosquito control	49
“ slug	20	<i>Myzus cerasi</i>	60
Clover-seed caterpillar	30	Nematodes	29
“ midge	30	<i>Notodontia larvæ</i>	47
Codling moth	39, 81	Nova Scotia, two garden pests of..	95
Comedy of Errors, a	68	Oat midge	29
<i>Conocephalus fasciatus</i>	19	Onion maggot	18, 30
<i>Contarinia tritici</i>	41	Onion root maggot	28
Cucumber aphid	28	Onion thrips	28
“ beetle	18	<i>Pachyta monticola</i>	23
<i>Cyrtophorus verrucosus</i>	23, 70	<i>Pegomyia fusciceps</i>	30, 41
<i>Dasyneura leguminicola</i>	30	<i>Phorbia brassicae</i>	18
<i>Diabrotica vittata</i>	18	<i>Phyllotreta armoraciae</i>	19
<i>Diacrisia virginica</i>	19, 20, 21	<i>Poecilolapsus lineatus</i>	20
Dusting vs. Spraying	79	Poison bait spray, in control of	
Ecology of insects	85	onion maggot	31
Eight-spotted forester	42	Potato aphid	19
Entomological Record	99	“ beetle	19
<i>Epitrix cucumeris</i>	19	“ flea beetle	19
<i>Estigmene acraea</i>	19, 20	“ stem borer	95
<i>Eupogonius subarmatus</i>	26	<i>Psenocerus supernotatus</i>	24
Field crops, insects attacking	18, 28, 29	<i>Psila rosae</i>	19
Forest trees, insects attacking	20	Quebec, entomological service of... ..	33
Fruits, insects attacking small ...	28	San José scale, dusting for	81
Fruit trees, insects attacking	20, 28	<i>Schizura concinna</i>	20, 47
Garden insects	20	Seed corn maggot	30, 41
<i>Gonioctena pallida</i>	22	Slugs	41, 43
<i>Gortyna micaria</i>	94	Spiders, transcanadian	76
Grasshoppers	19	Stable and hornfly attacks, effect	
Greenhouse insects	20, 29	on milk production	91
<i>Halisidota tussock moths</i>	20, 42	Temperature and humidity in rela-	
<i>Haplothrips statice</i>	30	tion to insects	90
<i>Hemerocampa leucostigma</i>	21, 30, 40	<i>Tetropium cinnamopterum</i>	24
<i>Hemerophila pariana</i>	44	<i>Theridion zelotypum</i>	77
<i>Heterocampa guttivitta</i>	47	Thrips, on clover	29
Hickory tussock moth	20, 42	“ onion	28
<i>Hoplosia nubila</i>	25	Tussock moth, hickory	20, 42
Horn-fly, effects on milk produc-		“ “ white-marked	21, 30, 40
tion of	91	Vegetables, insects attacking	28
Horse-radish flea beetle	19	Wheat midge	29, 41
<i>Hylemyia antiqua</i>	18, 30	White grubs	19
Insect behaviour toward stimuli ...	89	Wireworms	19
Insectivorous plants	86	Woolly-bear caterpillars	19, 20, 21
Insects and birds	89	<i>Xylotrechus undulatus</i>	27
Insects and plants, interrelations of	85	<i>Zebra caterpillar</i>	19, 38, 96

THIRTY-EIGHTH ANNUAL REPORT
OF THE
Beekeepers' Association
OF THE
PROVINCE OF ONTARIO
1917

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO:
Printed by A. T. WILGRESS, Printer to the King's Most Excellent Majesty
1918

Printed by
WILLIAM BRIGGS
Corner Queen and John Streets
TORONTO

To His Honour SIR JOHN STRATHEARN HENDRIE, C.V.O., a Lieutenant-Colonel in
the Militia of Canada, etc., etc., etc.,

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I have the honour to present the Thirty-eighth Annual Report of the Ontario
Beekeepers' Association for 1917.

W. H. HEARST,
Minister of Agriculture.

DEPARTMENT OF AGRICULTURE,
TORONTO, 1918.

Ontario Beekeepers' Association

OFFICERS FOR 1918.

President—JAMES ARMSTRONG, Selkirk, Rt. 1.

1st Vice-President—W. W. WEBSTER, Little Britain.

2nd Vice-President—A. McTAVISH, Carleton Place.

Secretary-Treasurer—P. W. HODGETTS, Parliament Buildings, Toronto.

Directors—R. E. L. HARKNESS, Iroquois; A. McTAVISH, Carleton Place; M. B. HOLMES, Athens; JOHN CHISHOLM, Belleville; W. W. WEBSTER, Little Britain; H. G. SIBBALD, Toronto; F. W. KROUSE, Guelph; JAMES ARMSTRONG, Selkirk; JOHN NEWTON, Thamesford; JACOB HABERER, Zurich; C. E. CHRYSLER, Chatham; R. G. HOUGHTON, Bradford.

Revising Committee—H. G. SIBBALD, Toronto; J. L. BYER, Markham.

Crop Report Committee—WILLIAM COUSE, W. J. CRAIG, H. G. SIBBALD.

Transportation Committee—J. D. EVANS, the President and the Secretary.

Representatives to Fair Boards:

Toronto Exhibition—J. D. EVANS.

Western Fair—E. T. BAINARD.

Ottawa—M. B. HOLMES.

TREASURER'S REPORT

FOR THE YEAR ENDING OCTOBER 31ST, 1917.

Receipts.

Balance on hand, 1916.....	\$187 38
Membership fees	876 90
Queen Order Receipts	803 67
Affiliated Societies, dues	135 00
Ontario Government grant....	700 00
Sundries	5 60
	\$2,708 55

Expenditures.

Grants to Associations	\$242 00
Expenses, Convention	276 65
Expenses, O.B.A. Committee..	126 45
Subscriptions, "The Beekeeper"	779 45
Printing and postage	175 08
Queen Order payments	718 80
Office help	12 35
Incidentals	13 41
Balance on hand	364 36
	\$2,708 55

Audited and found correct.

November 27th, 1917.

D. F. CASHMAN,
Auditor.

F. W. KROUSE.

President.

MORLEY PETTIT,
Secretary-Treasurer.

Ontario Beekeepers' Association

The thirty-eighth annual meeting of the Ontario Beekeepers' Association was held at the Carls-Rite Hotel, Toronto, on the 11th, 12th and 13th December, 1917. The President, Mr. F. W. Krouse, occupied the chair.

PRESIDENT'S ADDRESS.

F. W. KROUSE, GUELPH.

Another year has passed, and we meet once more to compare notes as to the ups and downs of our profession. I am glad to see so many familiar faces. In the midst of calamity, confusion and sorrow we have been spared to meet and speak with one another once again.

In the resignation of Mr. Morley Pettit we have lost not only a good secretary but a faithful servant to our Association. Mr. Pettit has done, perhaps, more than any other one member in promoting interest in and building up our Society. The membership shows an increase this year of 97 members. Four hundred and sixty-four of these members came in from affiliated societies and the balance of 649 by single subscriptions, making a total of 1,113. I think this is a good showing under present conditions.

The past season has not been a normal one. First the weather conditions of 1916. Prolonged drouth through the latter part of the season killed the young clover. The bees wintered very well, but in the spring of 1917 the weather was so wet and cold it made it difficult for the bees to gather means of life for themselves and precluded any building up of the colonies preparatory to their work during the honey flow. The honey flow, however, was two weeks late which gave them the opportunity of building up, to some extent, so that they were not two weeks behind as they would otherwise have been.

The crop was an average one with little clover. The crop of 1916 was so large that this year's crop, while really an average one, looked small to most beekeepers by comparison. The honey was mostly second grade with some No. 1 honey in some sections.

The price is higher than it ever has been, but is not abnormally high when one considers the increased cost of production and the high price of other foods of less nutritive value.

I think that we can safely say we are gaining over the American Foul Brood; but, on the other hand, European Foul Brood is gradually spreading. It is cropping up in new places all the time. So it behooves us to have good vigorous Italian queens at the head of each colony. We have another trouble that is showing up here and there in Ontario, and which is quite serious in some places. I will not say much about this as Mr. Armstrong will deal with it later.

Many beekeepers have found the obtaining of help a difficult problem. Our youngest and best men, at the very height of their power and energy, have obeyed a higher voice than the common details of daily life which engross us, while they have joined a nobler cause than ours and are doing duty overseas. We have a duty to perform at home, and that duty is to back them up and help along the cause by producing to the utmost and by straining all our energies to keep the home fires

burning with half the number of men to shovel in the coal so to speak. So that a large per cent. of the beekeepers have been doing the work of two men to keep the important work of production up to level at this time when production is so all important. Honey is becoming more and more a staple product. Sugar is so expensive that poor people and even people in better circumstances find it a luxury as well as a necessity. It is even being used by the allies in explosives, but this is not its principal use. So the necessity of producing in spite of inadequate help is so manifest that all who run may read.

There is every prospect of a good crop next year, and the outlook for us is a bright one. When we think of the disaster at Halifax, and of the tragedies occurring daily in war-stricken Europe, we are struck by the eternal goodness of Him who ruleth all, and who has given us such a large portion of the silver lining, out of all proportion to our desserts.

REPLY TO PRESIDENT'S ADDRESS.

JAMES ARMSTRONG, SELKIRK.

I am sure I am pleased to see the splendid turnout we have this afternoon. There are a few points that I would like to bring up at this time. The President has covered most of the ground and leaves very little for me to refer to. The first matter that I wish to refer to is: In regard to the Department at the Ontario Agricultural College we sincerely regret the resignation of Mr. Pettit. His place there at this time will be especially hard to fill; I am referring particularly to the conducting of the apiary inspection work in the Province. Most of us know how long it was before any proper effort to combat disease was inaugurated. The first few years comparatively little was accomplished. By its being taken in charge of by the Ontario Agricultural College the work was systematized, the districts were mapped out and records kept in a way that it would have been impossible for the Association or any committee of men appointed by it to do. Thorough records have been kept of the work accomplished and the condition of every apiary that has been inspected. Mr. Pettit is thoroughly conversant with all this and knows exactly what is yet to be done. This Association, I think, should emphasize our desire that this work be continued and still conducted through the College.

The matter of bees being poisoned and destroyed by arsenic fumes in some districts where silver smelters are located, and the great loss to beekeepers, rendering it impossible to carry on beekeeping in such districts, requires our special attention. No redress or compensation has been awarded in instances where this has occurred. I feel that the matter should be laid before the Department of Agriculture. No doubt an application will be made by other branches of agriculture that are affected besides that of beekeeping.

I am fully impressed that the time has come when a further amendment to the Foul Brood Act is necessary to prevent the importation of bees on combs into this Province. No doubt that European Foul Brood came to us in that way and it is rather unfortunate that something has not been done to prevent it sooner.

I would also suggest that Clause 5 of the Foul Brood Act be amended by the omission of the word "knowingly." The clause reads at present:

"Any owner or possessor of diseased colonies of bees, or of any infected appliances for beekeeping, who *knowingly* sells or barters or gives away such diseased colonies or infected appliances shall incur a penalty of not less than \$50 or more than \$100, or he may be imprisoned for any term not exceeding two months."

That word "knowingly" has been made a loop hole for evading the penalty in cases that no doubt should have been dealt with. Its removal will add force and power to the clause that is now practically useless.

MR. BYER, Markham: There were two things brought up in the President's address that we should discuss; there were also several points in Mr. Armstrong's address that we should deal with, particularly that of amending the Act. I think that word "knowingly" should have been taken out of the Act long ago. With regard to bringing in bees from the other side without being inspected, I do not know that that would protect us in anyway because we have European Foul Brood now in this country, and it is not going to prevent our bees from getting it.

MR. DUNN: I think that word "knowingly" is simply the joker in the Act, and it should be deleted. We do not expect to always have European Foul Brood, and in some districts they are getting rid of it. At the present time we have got it under control and we don't want to get it again, and I really think it would be a good plan to make the change as suggested.

MR. EVANS: On several occasions I have brought up this question of the importation of bees, and a committee was appointed about three years ago to look into that question. Mr. Pettit said he was going to Ottawa, and Mr. Scott was also a member of the committee and lived at Ottawa, but they did not get together and nothing was done. The matter was brought before the Local Legislature, and they decided that they had no jurisdiction in the matter. I think it would be a good thing to prohibit the importation of bees on combs. I believe it is perfectly safe to bring them in when not on combs. There are a great many parts of Canada where they have never seen European Foul Brood. I have never seen it yet, and I think we should do everything we can to prevent its spread.

MR. ARMSTRONG: There was a resolution passed at a conference of inspectors held at Guelph in regard to this matter. It was to the effect that no bees should be moved from one place to another without first being inspected. The inspectors found that beekeepers frequently moved bees from one location to another and if that is done, and the bees have disease, it is very apt to spread the disease in a new locality. I have had a number of complaints of things like that, and if the bees were inspected before they were moved it would save a lot of trouble. Every spring we have car loads of bees coming in from the other side, and I am of the opinion that these bees should be inspected before being allowed to enter Canada.

MR. BYER: That committee was appointed when I was in the chair. I remember that Mr. Pettit wrote me that the matter had been taken up at Ottawa, and they had very little encouragement at that time. The beekeepers were not unanimous; I believe there was some opposition from Quebec. We must remember that things are different to what they were a few years ago, and we can now get packages of bees.

MR. WEIR, Toronto: There is a point in Mr. Armstrong's resolution that appeals to me, and if the word "knowingly" is eliminated from that clause it will throw the responsibility on the beekeeper who does the moving. In my own personal experience for the past seven years I have found the greatest difficulty in pinning down the responsibility to the beekeeper who has moved the bees. After the moving has been done is no time to try and fix the responsibility. The bees should be inspected before they are moved, otherwise I don't see how the situation is to be kept in hand.

MR. HOLMES, Athens: It is admitted by all that the suggested change would be a protection, and in view of that I would suggest that Mr. Armstrong put his suggestion in the form of a resolution.

MR. MEYERS, Stratford: In Lambton County a beekeeper sent to New York for some bees and when they arrived he found that he had quite a dose of American Foul Brood; it came into a locality where they did not have the disease before. We should try to do something to prevent the spread of this disease. I would therefore move that Mr. Armstrong be instructed to bring in a resolution in regard to this matter at a later date. Motion seconded by Mr. Holmes, and carried.

COMMITTEE ON RESOLUTIONS.

The following Committee on Resolutions was appointed: M. B. HOLMES, H. G. SIBBALD, and J. L. BYER.

APIARY APPLIANCES.

W. J. CRAIG, BRANTFORD.

In taking up the subject assigned I scarcely know what is expected of me in connection with this item on the programme. I think the idea is to bring before the meeting any new appliances or inventions that may be of value to beekeepers for a free discussion of their merits or claims made for them. Let us keep in mind, however, that the time at our disposal is limited, and will not admit of our spending long over any one article except it is something of very special importance. With the Chairman's permission, I would say "Be brief."

I might say by way of introduction that the wire queen excluder of last season has been giving good satisfaction. It is our opinion that the wire will ultimately take the place of the perforated sheets entirely, even though prices of zinc become normal.

The wood-wire bee escape board has proved its efficiency and advantage over the plain board, or all wire board. The double wire cloth gives, not only ventilation, but prevents the bees feeding one another through the openings, which is the great objection to a single wire cloth.

We have here the Armstrong Capping Melter and Dividing Can. This, too, has been giving excellent satisfaction. I note Mr. J. L. Byer's article on the subject of "Rendering Cappings" in the last issue of the "Gleanings in Bee-Culture," and his reference to this machine. Mr. Byer obtained 700 lbs. saleable honey with 300 lbs. of wax in his renderings.

A nailing device for frames is rather a desirable thing for the beekeeper who has many frames to put together. This simple arrangement can be attached to a table or bench, the frame top bar is held firmly by the lever or eccentric and the sidebars are supported by the upright piece until nailed. The frame can be conveniently wired when in this position. While each one has their own particular contrivance and way of nailing their frames, this, no doubt, will be of interest and may be welcomed by those who have not a better system.

Here is an Imbedding Board, a board to centre the sheet of foundation, holding it up against the strands of wire for imbedding. How often some of us have tried to get along with some "make do" affair that was too short, or too narrow, or not thick enough for the purpose, and we wasted more time than would pay for an instrument like this many times.

Now, besides these there are a couple of articles on exhibition at the Canadian Fairbanks-Morse show rooms that will, no doubt, be of special interest to the Convention.

One is an uncapping box of liberal capacity and the other a power honey extractor attached to a Fairbanks-Morse one and a half-power gasoline engine. Most of us were under the impression that perhaps the last word had been said in reference to honey extractors, but there is evidently a later word and we think we have it here. The inventor of this machine is Mr. George Markle, of Brantford. Mr. Markle, I might say here, is not a beekeeper himself, but he has an invention which you will admit has never been realized or brought to notice before in connection with the extracting of honey. The quick acting brake and the new bevelled friction drive regulating the speed of the machine will no doubt be considered by you a great improvement over anything of the sort ever before presented, apart from the other features of the machine. Mr. Markle, who is here, has some models with him to illustrate his ideas, and deserves any credit there may be in regard to the invention.

MR. GEORGE MARKLE, Brantford: We have accomplished two things. In the first place we have a basket that can be set on an angle, and that will reverse without a slam or a jam. I think you will all agree with me that it is a step in advance. We have placed the baskets so that they will balance one another. The whole machine will run without any noise whatever. This machine will suit all ideas, you can run it with the baskets at an extreme angle if you like.

Q.—Is it a hand machine or a power machine?

A.—A power machine. I think any of you who have had any experience with friction drive machine will know that it is never a good hand machine, there is a certain amount of slip to the friction, no matter what you do.

Q.—Have you made a test of the machine so as to know how many hundred pounds it will run off in an hour?

A.—No, we have not gone that far.

Q.—Have you tested it with the baskets at a greater angle than you have shown us on the diagram?

A.—No, but I am satisfied that you can give it a greater angle and that it will be an advantage.

Q.—Does it require more power when it is at a greater angle?

A.—It cannot be noticed if there is any greater strain. It has taken two years to get this up, and during that time I have constructed several models.

MR. CHRYSLER, Chatham: When you place the baskets at an angle one portion of the basket travels faster than the other; do you find that the honey comes out of one portion faster than the other?

A.—Of course the basket would travel a little slower nearer the centre, but it would not be noticed.

Q.—In the ordinary extractor they have the baskets braced top and bottom, do you think your basket will be strong enough on heavy combs?

A.—We can put in another brace, but we don't want to add anything to its weight. I have had eight pounds in a basket and no trouble.

Q.—Have you got it so arranged that it will reverse itself?

A.—No, but all you have to do is to keep your hand on the lever.

Q.—Is that the largest size you make?

A.—No, we have been making the six and the eight.

THE CHAIRMAN: I am sure we will welcome anything that is better than the extracting machine we now have. I think we should all go and see how this

machine works. *Re* wiring frames, I took three dry cells this year and made an electric embedder, and I like it very much. It makes a very nice job and can be operated quickly, and there is no waste. Two batteries will do, but the more batteries you put in the quicker you have to take it off the wire, otherwise it will melt right through. We use the batteries for capping and extracting.

A MEMBER: If you can get electric current it is the very best thing you can have for the work.

MR. JAMES ARMSTRONG: This wax and honey separator that I have here can be used by any beekeeper. There is no patent on it, and you are welcome to make one if you like. Mr. J. L. Byer has used it, and speaks well of it. It is simply a double can and there is a seven-eighth-inch water space all around, and a double bottom, and hot water all around the boiler. If you put boiling water in in the morning and then put in the cork, you will have hot water all day without any further attention, provided the hot wax and honey is going in all the time. You must of course work in a warm room. We all know that in melting wax there is a certain amount of gum, and if you will get a wire dipper and just keep your slum gum about an inch and a half below the wax it will all run out of this spout, and you can send it to the foundation maker.

By using this machine you get every ounce of honey. Tons of honey are wasted in the cappings. Every place I go they say they want something to get the honey out of the cappings. The first year I tested this machine I had 25,000 lbs. of honey and it was nearly all capped over. We got a large uncapping box that would hold two days' capping, and that is draining off all the time, and then when we want to clean this out we have storing cans and we put it in there, and this is draining all the time, and we let it drain until no more will come. That year we got 300 lbs. of wax from the cappings and we got 500 lbs. of honey that was fit to go on the table out of these cappings. There is a person in the room that got some of that honey and his children preferred it to any other honey. This year we had a customer come back for some of that honey, he was not satisfied with the white honey he wanted some of the capping honey. I never saw any honey come through a machine where the heat was brought up to the point that it would melt wax, that you could not tell it had been melted. They claim it is fit to go in with the No. 1 honey, but I have never seen any of it that I considered fit for that purpose. I can always tell that the honey has been heated; it has somewhat of a cooked taste.

A MEMBER: When you heat it sufficient to melt the wax it gives the honey a cooked taste?

A.—Yes, you might call it a taste of wax, but there is not much of a taste to wax. If you run wax and honey into a vessel and leave it standing over night it will be a darker color in the morning. The more rapidly you run it off and get it separated the whiter your honey will be.

MR. DUNN: If you melt it as fast as you put it in all your honey will be darker.

MR. ARMSTRONG: We get all the No. 1 honey we can. Most of the beekeepers have been in the habit of melting their cappings by steam, and the honey that comes out is black and not much good except in a spring like the past one, when it could be fed to the bees. If you keep the slum gum down and don't allow it to run out with the wax, the wax is ready to go to the melter as soon as you take it out. If you let the wax harden it is very difficult to get it out of the vessel. I have been able to run this machine all day long without having to fill it the second time with water.

MR. BAINARD, Lambeth: We have a separator and we have no water around it at all, the wax keeps it warm, we re-melt the wax.

A MEMBER: We can verify every word that Mr. Armstrong has said in regard to his machine. It has saved us its cost this year alone. We put all our honey through that machine this year.

MR. DUNN: I have used one of these capping devices, and I know something about it. Some people say the honey is just as good, but we are pretty choice down our way. I don't think you can let any of this capping honey come in contact with good honey without there being a difference. We used one of these machines a year ago last summer for the first time, and we got 140 lbs. of honey that would have been wasted if we had not this machine which cost us only \$14. We used to wash out the cappings and make it into vinegar, but we got tired of that sort of thing, and we are just delighted with the capping machine.

MR. CHRYSLER: We have melted our cappings for a number of years, and we mix the honey with the buckwheat honey. If you use a smoker for the purpose of taking off the honey you must expect to have that honey dark. Smoke is nothing more or less than lampblack, and it will spoil the flavor of the honey and the color to a certain extent.

MR. ARMSTRONG: This bee-escape board does away with all the necessity for the smoker.

MR. DUNN, Ridgeway: Tell us why you have put the bee-escape in the corner?

MR. ARMSTRONG: I found out the necessity for that twenty-five or thirty years ago. If you go out to the bee yard you will see that the bees are all around the edge of the wire and not around the bee-escape if it is in the centre. If there is a piece of burr-comb near the bee-escape it will shut off the escape altogether. You will very seldom see any burr-comb on the outside. We also have the advantage of four escapes, one at each corner, so that if one or two get blocked up there will always be two left open. This works on the same principle as a pond-net for catching fish in the lake.

A MEMBER: Will that take the bees all out of the super?

MR. ARMSTRONG: Yes.

A MEMBER: How long does it take?

MR. ARMSTRONG: Just about an hour. We use just a puff of smoke. I let the other fellow do the lifting, and we work so fast that we get this in before the bees know anything about it. At our home yard the bees are only ten feet from the sidewalk, and if we did not use this we would have a deputation call on us to ask us to get out of town and everybody would have to get under cover; but by using this we get the job done and nobody knows anything about it, not even the bees.

MR. SIBBALD: You would not advise having it in two sections?

MR. ARMSTRONG: No, I would not.

A MEMBER: Do you find that the wire excluder cleans them out as clean as the wooden excluder. I find that they hang in on the wire excluder longer.

MR. ARMSTRONG: That is because the bees are not working, they cluster together and will not move as quickly. If the bees are working they will get out.

MR. HOLMES: I can endorse what Mr. Armstrong has said with reference to the escape in the corner. I find that the bees get out much more rapidly than in the old way.

MR. CHRYSLER: I have used the escape for a number of years, but at the home yard I take my honey into the honey house direct, and pile them up criss-cross, bees and all; and in one hour the bees are all gone, and we can extract without any bees

to bother. We can take fifty supers in this way, and when we can do that without having to use the bee-escape at all it saves a great deal of time. I use the bee-escapes in the out-yards and draw the honey home.

MR. MEYERS: I do not know what Mr. Chrysler's bees are like. I have bee-escapes in all my windows and still they gather in clumps on the tops of my windows and I have known them to hang there for days until I would have to shove them out. I certainly prefer a bee-escape to having so many bees around the yard.

THE CHAIRMAN: We had one colony that learned how to get into the honey house and they cleaned all the combs for us that were in there. This year I took some bees in there and let them get on the combs but they didn't find their way back again. I think what we need are bees that we can train to do these things for us. I do not know whether any of you have used the Alexander Wax Extractor that melts the capping as you go along. I have used it for two years, and it does away with all this wax melting later in the year. If the honey is put in a large tank the scum can be taken from the top and there is very little trouble.

MR. MEYERS: Do not you think that changes the taste of the honey, if it is heated sufficient to melt the wax?

THE CHAIRMAN: This material rises to the top, and when it is taken off the honey is all right. It is much thicker and it rarely granulates.

MR. MEYERS: If that is so it is worth all the trouble and expense of coming to the Convention to find that out.

MR. DUNN: If you take white clover honey and heat it up you are sure to destroy the delicate flavor of that honey, but it won't have that waxy taste. In one case you have the mixing of the wax with the honey and in the other you have the discoloration of the honey.

THE CHAIRMAN: When you use this Alexander Wax Extractor the wax is not really melted, it merely runs over a heated surface; it is partly melted but the honey is away from it. No doubt there is a little that you have to re-melt. I think it is away ahead of the other on account of doing away with the work at night.

COMBATting EUROPEAN FOUL BROOD.

J. L. BYER, MARKHAM.

We have only had one year's experience with European foul brood and I do not feel like making any positive statements. Although our experience this year has been fairly satisfactory, yet we don't know what will be the outcome next year. You will remember that this was a backward year and the fruit bloom did not come till late. When we went to clip the wings of the queens at one apiary June 2nd, the very first colony examined had European foul brood. No bees had been taken to that yard or from it for some years. We didn't find any trouble in any of the other yards and how it got into this yard I do not know. We did not know that there was any of the disease within forty miles of our yard. We learned from the Inspector later that there was disease in a yard only two miles away and in another yard four miles from us. I do not know whether we got it from them or whether they got it from our bees. Notwithstanding that I had read about everything that has been written on the subject for the past ten years, I wrote to a number of beekeepers and asked what

they would advise doing, and the replies were very conflicting and we came to the conclusion that we would just have to do what we thought best.

We started on the 2nd day of June and went through the ninety colonies. They had all wintered in good condition. We found thirty diseased colonies. Twelve of them were gone so bad that they might be said to be rotten. The weather turned bad and we could not do anything for four weeks. When we went back we found sixty of the colonies had the disease, it had spread like the plague. That apiary some ten or eleven years ago was practically all Carniolan bees. There were not more than eight or nine colonies in the yard that were black bees. Those eight or nine colonies of black bees were among the twelve that were very bad. I ordered twelve two-pound packages of bees to come along at opening of clover so as to try and save these twelve colonies. I did not think there would be ten per cent. of the brood left. The packages came along on the 3rd July, and we took away the bulk of those combs that were rotten, some of the few sealed cells were rosey and were of a dark chocolate color. In American foul brood the great bulk of the cells will be sealed over, but in European foul brood seventy-five per cent. never get sealed over. After we gave these twelve colonies that were so bad the two pounds of bees each, they cleaned the diseased cells all up and went into winter quarters clean. That left us 50 diseased colonies and we went over them again and marked them, light, medium or bad, and we killed all the queens on one day and those that were light we let go one week and then put in good Italian queens. Those marked medium we let go two weeks and then put in the queen. Those marked bad we let go three weeks and then we strengthened them with two or three combs of hatching brood and good queens. There were 96 colonies put away in that yard this fall, all in good condition. There may have been a small amount of foul brood in some of them. We did not get one pound of surplus honey from the 60 colonies affected. We have had American foul brood but we lost more this one year with European foul brood than we have lost altogether with American foul brood in years past. I expect we will find it in our other yards next year. Some people claim that there is no such thing as a resistant strain of bees against European foul brood. We wanted to make a test and we had one colony which showed no signs of foul brood although there were colonies on each side of it that were rotten with it. We took this colony which showed no signs of foul brood, and filled a super with ten badly diseased combs and put it in on top over queen excluder. They would have to clean out all that mass of foul brood. I expected that colony to get foul brood, and I was not worrying whether they did or not, I just wanted to see what would happen. Ten days after that my son went over with me and we lifted off the super and found that they had about one-third of the combs cleaned out. We looked very closely and we could not find a single cell in a brood nest of diseased brood. They actually cleaned those combs up and filled them with buckwheat honey and went into winter quarters in excellent shape. We had one colony that had lost its queen and having a queen on hand, wrapped her up in about half a cup of honey and put her in the hive. I said: "Here is a case where foul brood will develop." Three weeks after I looked into that hive, and I found that the queen had been prolific, and had started a great lot of brood, and over half of it was diseased. I let them go on in that colony and they gradually cleaned up everything.

MR. SIBBALD: Were they old queens or young queens in the sixty colonies?

A.—About 75 per cent. of them were young queens.

MR. SIBBALD: I would like you to describe the appearance of the diseased

brood and make a comparison of it with the American foul brood. I have never seen a case of European foul brood.

A.—In American foul brood about 75 per cent. die after they are sealed over. In European foul brood about 75 per cent. die before they are sealed over. When it gets real bad the larva die when they are only two or three days old. They become a sickly yellowish color. A comb of diseased larvæ looks as if they had all hatched at once, and as if a cup of hot water had been thrown on it. When they get to the ropey stage there is a sickening smell. It has a sort of chocolate color. I do not think I would dread this disease very much if my bees were all Italian.

F. W. L. SLADEN, Ottawa: You must remember that this is a seasonal disease. It comes in the spring, and after that season has passed it works more slowly. That accounts for your colonies getting better later in the season. One single cell can affect a whole colony just as much as a lot of rotten brood. Therefore, if it is early in the season, and you have only one or two cells affected, you may get the whole colony affected in a short time, and later on in the season it would likely get cleaned up and not spread. It is a fact that certain strains and certain breeds are more resistant to European foul brood than others. That is not the case in American foul brood. I have had quite an experience with this disease in England, and feeding sugar syrup is all right in its way, but when sugar is so dear I would advise waiting till the honey flow to treat. It is a good idea to put in a good young Italian queen. The disease spreads very rapidly. You will find that leaving your colony without a queen for a time and then re-queening with an Italian queen in June or July will help greatly in getting rid of the disease. You may get the disease again the next year and you will have to keep up the process.

MR. BYER: What may I expect next year? Those colonies went into winter quarters with all young queens, all Italian, except ten Carniolans that were put in to test out their resistant quality?

MR. SLADEN: Under ordinary conditions you will find that early in the spring they will have European foul brood. Take the queen away and give them a rest and then re-queen.

THE CHAIRMAN: I am sure we should be thankful to Mr. Byer for giving us this talk on European foul brood. I think the time is coming when it is going to crop up all over this country, and it is up to us to have good Italian queens and be prepared.

MR. DUNN: Suppose you have a yard of one hundred colonies, and you find a case of European foul brood, and you put in a good Italian queen and it is all cleaned up; would it crop up again? Do you think it is still there?

MR. SLADEN: I do. We had a bad attack of European foul brood at Ottawa before our colonies were Italianized. I re-queened and we did not have it again; and this year, after three years without having a case of it, we had quite a bad case. I could not trace it to anything but the germs remaining in the apiary. I do not think that bees from such an apiary should be shipped. One test of whether you have foul brood in the apiary or not is if you get a drone laying queen, and if these drone layers raise worker cells and have all the symptoms of foul brood then you still have it in your apiary. When you get it in the drone cells it will spread to the workers. If the drone brood and the worker cells appear perfectly healthy I would say that colony was perfectly free from any affection of European foul brood.

MR. BYER: When cutting the queens out of these 50 colonies I am not sure that we found a single live larva in all these queen cells.

MR. DUNN: It seems to me that the best thing to do is to keep good Italian queens all the time and if we do that we can snap our fingers at European foul brood.

QUESTION BOX.

(ANSWERED BY MR. DUNN.)

Q.—How does European foul brood spread? Through the honey, the larva or the queen?

A.—That matter has been gone into very thoroughly by Mr. Byer.

Q.—Which is the best hive, 8, 10, or 12 frame?

A.—I do not know, but I do know which is best for me. I like a hive which is a little bit larger than a 10-frame Langstroth. The ten frame is the standard, and I would advise people starting in the business to use it.

Q.—What is the best packing for winter. Should there be an allowance for upper ventilation?

A.—Never use clover chaff because it gets mouldy. Sawdust has been placed at 60 per cent., and planer shavings at 80 per cent. I think granulated cork makes the very best packing.

THE CHAIRMAN: I have recommended several people to get that granulated cork and they are unable to buy it.

MR. DUNN: I don't think you can get it at the present time. I have always contended that there is very little need of upper ventilation. I have wintered my bees for a number of years by confining the colony to the size of the hive. If it is a small colony there is no trouble wintering them if you confine all the heat to the hive. I paper them right down good and warm and always give them a larger entrance if there is no upper ventilation. I would not think of putting up a colony that covered only five frames and leave the rest of a ten frame hive empty without putting something about it to take off the moisture. I pack my bees pretty late. I do not use a division board. I just use a dummy to reduce the size of the hive.

Q.—Would you recommend that way of putting them up in the cellar?

A.—I have done very little wintering in the cellar.

Q.—Do you think the location makes any difference, you are pretty well south?

A.—Yes, we are down where there is more humidity than there is in other parts of Ontario. It very seldom gets below zero with us.

Q.—What shall we do with defaulting southern exporters of bees in pound and two-pound packages?

A.—Has any member here sent for packages of bees and did not get them?

A MEMBER: I ordered 55 three-pound packages and I only got 22 of them, there were 25 packages shipped.

Q.—What time were they to be shipped?

A.—I ordered them shipped on the 13th April, and the 22 packages were shipped on the 20th April and they reached me on the 26th. The 22 packages were 13 pounds short in weight. I explained to these exporters the amount of the deficiency, and they did not give me any satisfaction. I immediately cancelled the order for the second 25 lots, and they returned the money for the second 25 but I never got any redress as to the first shipment. Of the first lot, 3 packages

were lost in transit. Of course I billed the express company for that but I have not received anything from them as yet. These people advertise in the *American Bee Journal* and in *Gleanings*.

THE CHAIRMAN: The Root Company has taken this matter up, and they are making their advertisers come up a little better than they have been doing.

Moved by Mr. HOLMES and seconded by Mr. WRIGHT, "That in future, packages of bees be bought through the secretary of the association in the same manner that queens are now purchased." (Carried.)

Q.—Is the double walled hive an advantage or a disadvantage?

A.—It is an advantage and it is a disadvantage. I would not take one hundred double walled hives with three inches of planer shavings all around them as a gift. They are too cumbersome. I do not want anything much heavier than a single walled hive. My hives are made of quarter-inch cypress. I put glue and boiled oil on the inside of the boards and that will resist the moisture. I paste paper on the inside of the outer wall and on the outside of the inner wall, and that makes an overcoat for the boards, and then I fill in the space with granulated cork, and when I am through with it I can hold the hive out on my hand. For cellar wintering it is the finest thing you have ever seen. A single walled hive put up in that way will winter in the cellar with about ten pounds less honey. For inside wintering I use no packing whatever and no upward ventilation.

A MEMBER: Did you ever notice that when you pack the bees with shavings and when the cold weather comes, on a real cold morning that there will be frost all around the sides of the top, and that right in the centre there will not be any frost?

A.—I never see any moisture. You go into a house that is not sufficiently heated, where they use natural gas, and you will see dampness all around the walls; but in the same house properly heated there will be no dampness.

MR. MEYERS: There is no room for air to escape from the cover of my case. I seal it down tight. The air the bees get is from the entrance. I never see any dampness and I am successful in wintering my bees.

Q.—What is the best absorbent material for use in outside wintering?

A.—Nearly everyone uses chaff or planer shavings. I think you require more of it if you use leaves. I know one beekeeper who mixes planer shavings and leaves. If you use the same leaves year after year they get about as fine as sawdust.

MR. BAINARD: I got some cedar sawdust and it was very coarse. It is just like cork dust.

MR. BYER: I think the beekeeper should use whatever material he can get the handiest. We have colonies away up on the Georgian Bay and they are always packed in sawdust.

Q.—My honey board has a bee space, would it be an advantage to invert it for wintering outside?

A.—Almost anything that gives the bees a space over the tops of the frames I think is an advantage for wintering outside. Some people use the queen excluder and it is all right.

Q.—How do you control swarming?

THE PRESIDENT: There has been very little swarming with me this year. I have been able to handle ten yards of bees without any help, and have only had ten per cent. of swarming. Fifteen swarms got away from me. If we have a big honey flow we do not have so much swarming.

THE CHAIRMAN: I claim the packed hive is an advantage in keeping out the cold at night. Whether it is the night or the middle of the day they are always the same. They are not so much affected by heat and cold.

MR. DUNN: I want to read to you a piece of poetry that has been written by Mr. A. S. Thurston, one of the reporters at the table, while this meeting has been going on. It is as follows:—

BEEKEEPING.

Who would get rich and labor not,
Who would roll deep in wealth,
Let him secure a vacant lot
And raise some bees himself.

The bees work busily all day,
And roll up stores of honey,
Which then the owner takes away
And trades it off for money.

It's oh! how bright the future lies
Until awakening rude,
Hits him a plunk between the eyes—
American foul brood.

And then the drouth hits him a clout,
And bees go honey dry;
To dodge Hanna he sets out,
And sugar tries to buy.

So think a while, oh, friends, beware!
Before you buy a bee;
You'll have your ups and downs, I swear,
Nor lazy will you be.

I think the beekeepers are the most optimistic people in the world, I do not know a single grumbling beekeeper. They are not like the old lady who said she always felt bad when she felt better, because she knew she was going to be worse to-morrow.

Q.—What advantage has a large hive over an eight frame hive?

A.—The advantage of a large hive over a small hive is that in the first place we get just as much honey as we do from the small hive and with less manipulation and less work. I am always glad that we have large hives when we come to get our bees ready for the winter. If there has been a buckwheat flow you do not have to feed in the winter. We use a large hive and I can get one hundred colonies ready for the winter in a half-day.

Q.—How many hives should be in one yard of one acre?

A.—I don't understand whether that is an acre of bees or what. It depends on the locality, there are places where 50 hives would overstock the locality. This year I only got one-third of the honey that I got the year before.

Q.—What is the reason that some fall honey has a very disagreeable odor, does it lose that in keeping? Does comb honey ever become candied?

A.—Comb honey under certain conditions will become candied. If it is kept in a cool place it is very apt to candy. It should be kept in a warm place. I don't know why some fall honey has a bad odor. When our bees are gathering buckwheat it has a bad odor, but it passes away when it becomes ripened. All honey has a certain aroma, and that is why it should be sealed up just as soon as you extract it.

A MEMBER: I have comb honey that is four years old and it is not candied.

MR. SIBBALD: It should be wrapped in paper so that it will be almost air tight. If you keep damp air away from it it will keep for a very long time.

MR. ANGUISH, Lambeth: I keep it up near the ceiling in the kitchen. If we do not have good honey we take some of this old honey to the exhibitions. If I showed you some of this honey you would think it was this year's honey.

MR. MEYERS: I had reference to the ordinary comb honey. I have never been able to place it in a store and have them keep it until May. It always granulates.

Q.—What is the best shelter to have around a bee-yard?

A.—I do not think there is anything better than the natural shade of evergreens or something of that kind. If you have not that then a fence eight feet high is best. My yard is on a farm two miles out in the country, it is a rather windy place. It is a rather level place but there is a hill that was covered with sumac. One year the snow drifted and covered up my entire yard. The next year we built a lattice fence eight feet high. We bought a lot in town and put a lattice fence around it eight feet high. You should not build a tight board fence, because if you have a tight board fence the wind will go right over the top and come down in the centre of the yard like a scoop. When I go into my yard the wind is there but you cannot tell which way it is blowing, it seems to be all broken up into little squares. You must have a sheltered location where the wind won't get at the bees. I think shelter has a lot to do with the successful wintering of bees.

RENDERING BEESWAX.

JOHN NEWTON, THAMESFORD.

The question of rendering beeswax is important in these war times when we are talking so much about thrift. There is a great deal of wax that goes to waste that might be put into dollars and cents. I do not know that I have anything new to tell you. Yesterday we listened to a good address on this subject, and there were many points that I agree with in that address. When one thinks of the vast amount of money that has been made out of honey during the past few years, and then if we could have added to that a large sum of money that has been allowed to go to waste in the matter of wax it would make a nice tidy sum. In going about I see lots of wax here and there in the bee-yard that ought to be put into money. We all know where the wax comes from, but do we realize how much honey we are using up in the manufacture of that wax. It takes about 16 pounds of honey to make one pound of wax. I think the wax we secure from the cappings is the best wax that we can get. This wax can be easily converted by the capping melters. If you have not got a capping melter then the solar wax extractor is the next best thing. There are quite a number who are only keeping a few bees, and the solar wax extractor is a splendid thing for small beekeepers. Some condemn the solar machines on account of the wax getting hard and bleached, but that is the fault of the man and not the machine. You can get just as nice wax from the solar machine as from any other. When I first went into the business I had three solar extractors. Some say that the honey is a little discolored, but it will not be very much if you work the machine in the proper way. I never put this honey in

with the No. 1 white honey. Those who put this honey in with the No. 1 are doing something that they should not do. I think it was Mr. Armstrong who said that he had customers who were just craving after that honey, if that is the case then I think it should be sold separately.

I think we get the next greatest amount of wax out of old combs. The only proper way to render old combs is by the use of the press. I am using the press that Mr. Sibbald got up. I would not care to say that it is the best, but I like it, and whatever press is used that is the proper thing to use. It is necessary to use plenty of water or steam in order to get the wax through the press. Relax the press after you have pressed the comb several times, and the more you do that and the more hot water or steam you use the better results you will have. I have always found that I get more wax out of old combs if I break them up and soak them.

MR. DUNN: How long would you advise soaking the combs in water?

A.—A couple of hours, I just use cold water. If you use warm water you can melt them quicker. I always keep all parts of the press soaked in water, if you do not do that the wax will stick to the press. In the manufacture of foundation we always keep the material wet in order to keep the wax from sticking.

THE CHAIRMAN: Why do you soak the combs in cold water when you have to put them in hot water to press them?

A.—There is a certain amount of bee-bread in combs that does not seem to soak through before the wax begins to melt. When it is thoroughly soaked the wax releases from it.

MR. TILSON: How do you get the wax off the wire screen?

A.—Just set the screen down and take a kettle of water and pour on it and then tap it with a stick.

MR. MEYERS: You should pour the water on the underside of the screen.

A.—That material should not be wasted, very often you can get a lot of wax from it.

MR. HABERER, Zurich: How much wax would you get from ten combs?

A.—You should get $2\frac{1}{2}$ or 3 lbs. I was speaking at Chatham a week or so ago and someone asked me a question like that. I was looking over a batch that was sent in and I found that I had 52 lbs. of old combs, and after it was rendered I had 32 lbs. of real nice wax.

MR. HABERER: I had a lot of real old heavy combs, and I got 8 lbs. of wax out of 24 that was extra good.

MR. SIBBALD: You will get more wax out of old combs than out of new combs. I believe the longer the combs are used the more wax the bees add to them. They clean out the cells and they put wax on the different parts.

MR. NEWTON: If they are burr combs of course it is nearly all wax. I think it pays well to render old combs. Some people hang on to their old combs and think they are saving money by doing so. I think it would pay to melt a certain amount of combs every year. You would have better honey by doing so.

MR. MEYERS: In what way would you secure better results?

A.—I do not think honey should be taken out of brood combs, I do not think the same grade of honey can be produced from combs that have had brood in them.

MR. ANGUISH: Do the bees keep adding wax to the combs?

A.—Not a great deal. If you scrape the combs it will help. I do not think

many beekeepers go to the trouble we did 25 and 30 years ago. The first job I can remember doing when I first went to work for Mr. Hall was scraping the combs every spring. Everything was scraped, and all this material was turned into wax. That is not done to-day like it used to be. If you render burr combs you will be astonished at the amount of wax that you will get out of them. They are practically all clear wax. Some years ago a man sent a lot of that stuff to me, and it was nearly all burr comb, and at the close of the season I said "I have so much of that left" and I showed him how much there was of it in the barrel. He said: "How much do you think there is in the barrel?" and I said there must be at least 8 or 10 lbs. He then said: "If you are willing to pay me for 8 lbs. I am satisfied," and I did so. When I came to weigh up the wax I had 20 lbs. Before that I did not have any idea that there was so much wax in these burr-combs.

MR. CHRYSLER: There is a large amount of wax in propolis. It looks like mud, but do not throw it away, because you can make nice wax out of it.

MR. NEWTON: Yes, you can make big wages in looking after the wax.

THE CHAIRMAN: Last year we scraped the combs from two yards. We kept the burr combs separate and the propolis separate. I had one boiler full of burr combs, and when it was melted it was nearly all wax, there was 25 lbs. of wax in the boiler. Then we put the propolis through. It looked just like dust, but we got eight pounds of wax from it. I have always thrown that away, but I find that there is a lot of wax in it. If you put it in the press and allow it to get cold it will stick to the press. It gets as hard as cement.

A MEMBER: I put the hose into the press and keep it hot all the time with steam.

THE CHAIRMAN: Don't you think we could make good wages by scraping the combs every year?

MR. NEWTON: Yes, I think you could, and you would have much better combs to work with.

MR. SIBBALD: I think it would be interesting to let you know what I got from odds and ends about my yard. It had been accumulating for two years. I just rendered it the last few weeks and I got 150 lbs. of capping wax. Then the slum gum, left from the cappings and the scrapings made 270 lbs. of wax, that was worth 40 cents per pound.

MR. NEWTON: I use a double boiler for melting cappings.

MR. MEYERS: What is your opinion as to using that honey for winter feeding?

A.—I never advocate feeding any of that stuff back. If I have any of it, I use it for spring feeding.

Q.—Do you think it would be harmful for winter feeding?

A.—I do not know why it would be, but I have never fed it. I had about 200 lbs. of honey that came from the solar extractor, and I thought of feeding it to the bees for the winter. I read that article by Mr. Byer's about feeding boiled honey, and Mr. Pettit gave the opinion that it would not hurt to feed it for the winter, but Dr. Phillips said he would not feed it under any circumstances. He said the more it had been colored the more sugar had been changed and made unfit for the bees to winter on.

THE CHAIRMAN: I tried it once on one colony, but I did not try it again.

MR. CHRYSLER: I tried it on one colony and the bees were all dead in the spring.

MR. NEWTON: I have always been against the use of acid for clarifying wax, but the past year I used a little acid for that purpose with success. I can always tell the acid wax when it comes to me to be made into foundation. Some people use so much acid that they burn the wax and it takes the life out of it. I would sooner have the foundation made out of wax that was a little darker and no acid used in the wax.

MR. MEYERS: Did you ever notice that the grain of the wax is more brittle if acid has been used?

A.—Yes, I know that. If you use a moderate amount of acid I don't think you will be troubled just the same. Our old friend Mr. McEvoy was the first man that I received wax from that had acid in it, and we are getting wax from his boy to-day and he uses acid. It is nice wax to look at. If you were selling wax to a furniture man, or a shoeblacking manufacturer or an electrician, and if you told them it was clarified with acid, they would tell you that they did not want it, because they could not use it for polishing furniture. I used to supply a firm in Buffalo with wax, and that would be the first question they would ask me, whether any acid had been used, and if so they did not want it. This year I made use of wax that was as black as your shoe and by using acid I made it look beautiful, but if you use too much acid it will spoil the wax. I use a gill of acid to one hundred pounds of wax. I dilute the acid in water first, because if you put it right into the wax it will burn it. It will not hurt if you use a quart or two quarts of water. I usually put the water in until it stops boiling.

Q.—Have you sold wax to a dentist?

A.—Yes, they prefer capping wax. The dentist wants the wax without any acid in it. When you pour the acid into the wax you must keep stirring it, let it stand for fifteen minutes, then give it another good stir, and then let it settle and dip off your pure wax from the top.

Q.—What do you do with it if you overheat it

A.—I don't think you can do anything with it, it makes a lovely fire.

MR. CHRYSLER: The oily nature of the wax in the old comb can be revived by mixing it with pollen. I take these scrapings and mix them all in and it will all come back. You cannot get all the wax back by melting it over, there are certain parts of it that goes to dross every time.

MR. NEWTON: I have never been able to do anything with this mealy substance that the life seems to be taken out of. It might be good for some purpose but it is not good for foundation.

MR. MEYERS: Did you ever lay it away for about a year and then try to melt it. I tried that, and it seems to me that the wax should be allowed to get perfectly dry and then mix it up and melt it and you will get perfect wax.

THE CHAIRMAN: If you laid it away for a year and it got mouldy it would not be any good.

Q.—We have been recommended to boil the wax if there is foul brood in the yard. Does the boiling of the wax for thirty minutes affect it from a manufacturer's point of view?

MR. NEWTON: I never yet saw a case of American or European foul brood from using this wax in foundation. We always recommend to not boil the wax because if you do you spoil it, it takes the oily substance out of it. I have been using foundation made from wax that I knew came from a yard where there was foul brood, and I am sure there is no danger of getting the disease from that, the heat kills the germs.

MR. CHRYSLER: Wax will not boil of itself. When we speak of boiling wax, we mean that there is water in it and that the water boils. You can heat wax to a higher temperature than boiling and yet not boil it, so that you can really burn wax and not boil it.

MR. DUNN: You should not allow the bees to get near the solar wax extractor, and you should not use one if there is foul brood in your yard.

MR. NEWTON: For the last few years we have got very little adulterated wax, years ago we used to be troubled a great deal with adulterated wax. We get some wax with a little grease on the bottom, some people put a little grease in the can so that the wax will come out easily, but that is not necessary because when the wax cools it contracts away from the tin.

MR. TILLSON: What is the object of having two grades of foundation, medium and light, and when should medium or light be used.

A.—It rests to a great extent with the beekeeper. Personally I think medium foundation is the cheapest in the end.

Q.—Why?

A.—Because I think the bees have to add so much more to the light, and then I do not think you will have as nice comb. I realize that you get two sheets more to the pound.

MR. DUNN: My opinion is that the time to use light is when you cannot get medium.

MR. NEWTON: I have people who write to me asking for ten to twelve sheets to the pound. We do not want to make it so fine, because a machine that used to cost \$30 is now worth \$140, and we do not want to cut things down so fine that we will injure the machine. People think that if they get so many more sheets they will fill so many more frames, but if they would stop to think they would realize that they would get much more honey by using medium combs.

MR. CHRYSLER: That is my opinion. The extra thin is rejected by the bees and probably they will not start to work at all.

MR. LLOYD: I have had some experience with extra thin foundation, and I would not use it again if I could get it for nothing. It will split and break and give you all kinds of trouble. I put some in without wires, and I extracted it. I would not use anything thinner than medium.

MR. NEWTON: Medium is the cheaper and the best in the end.

MR. HABERER: We like the medium in every case. If you are short of foundation it might be advisable to use light foundation. We have had good advice as to how to get sufficient wax. We have been in the habit of cleaning the combs, and when you are cleaning the combs during the winter I would say to cut it off clean down to the frame. The slum gum and everything should be saved.

MR. CRAIG: The thing that counts is the side wall and the cell. The amount of wax that is left on the side wall is what counts with the bees. We speak of six Langstroth sheets to the pound as medium foundation. I might say for the benefit of the association that three-fourths of all the foundation we make is light or eight sheets to the pound. It is a matter of what the bees think of it and not so much what the beekeepers think of it.

THE CHAIRMAN: I always understood that eight sheets to the pound was medium foundation?

MR. CRAIG: No. It is just a question of what is meant by heavy or light foundation. There is really no heavy foundation sent out, not as far as the

new process is concerned. We manufacture medium and light and what they call light is eight sheets to the pound.

THE CHAIRMAN: I have been using the eight sheets to the pound, and I thought I was using medium. I got some ten sheets to the pound from the other side, and I did not like it.

MR. CRAIG: They use ten and twelve sheets to the pound in the United States.

MR. NEWTON: I have been very careful in what I said with regard to the different makes of foundation. It is a matter of choice as to whether you use the Weed process or the old process. This matter has been well discussed and I trust you have all been benefited.

THE FARMER BEEKEEPER.

W. W. WEBSTER, LITTLE BRITAIN.

When the subject of "The Farmer Beekeeper" was assigned to me I regretted very much that my family were not orators, for to be able to express one's views clearly and concisely I believe to be a valuable asset to any man.

The occupation of farming, including beekeeping, is what the poets call "A noble calling 'neath an humble name." For a number of years I have been managing a farm consisting of 200 acres and 200 acre ranch farm adjoining, and 90 to 100 colonies of bees.

Why I chose to combine the two occupations I cannot say, but perhaps for the same reason that the Israelites longed for a land flowing with milk and honey, for in combining farming and beekeeping you sometimes have these ideal conditions of a land flowing with milk and honey. The dairy part of the business is a great business and gives direct results. You can give a cow a pail of water, then immediately milk a full pail of milk. Did you ever get the pail almost full when the cow kicked and the land flowed with milk for many feet around you? If you haven't, I have. Did you ever turn a tap on a honey tank when honey runs slowly, then be suddenly called away thinking you will be back before the vessel is full, then you forget and you are called to see about something else and when you come back the honey house and even the land beyond flows with honey? So the farmer-beekeeper at times enjoys the ideal condition of a land flowing with milk and honey.

Why should we not combine farming with beekeeping? Let us imagine agriculture to represent a tree and beekeeping a little branch, yet very essential to the welfare of the tree. The bees pollinize the clovers, buckwheat and fruit blossoms, and as a result we have an increased yield of clover seed, grain and fruit. Then to make the business a success, the farmers must produce clovers and buckwheat, which with us are the principal sources of nectar as the willows, golden-rod, asters and fruit blossoms would not be sufficient to make it a profitable business.

Farmers, in general, are not always as thoughtful for the welfare of the apiarist as they might be in planting seeds and grain which produce nectar for the bees. So in running a farm in connection with bees you can plant alsike, red and sweet clover, also buckwheat, and in this way, especially on a good sized farm, be able to influence the honey crop to a great extent.

Our chief flow is from alsike clover. Red clover yields some during the buckwheat flow, but somehow when it gets together it is all buckwheat honey. Sweet clover yields a little, but being a very bad weed is not grown very extensively as

yet in our locality. Sweet clover used to be a weed, although it is not considered so now; but I believe it always was and always will be a weed. The bees, however, work on it well. A neighbor of mine who had a nice field of sweet clover was very enthusiastic over it as it proved a good paying crop, and in addition to this built up the land for the following year. He also observed when the clover was in bloom the bees were very thick and busy on the blossoms. He concluded they were my bees, and decided I was securing honey very fast, and told me he had no doubt I would be over shortly with a quantity of honey to his home. I assured him I would consider the matter and asked him if it would be convenient for him to bring me over a few bushel of sweet clover seed in return for the accommodation the bees had given him in pollenizing the blossoms and securing for him a good yield of clover. He has not brought the seed yet; perhaps he will when I take him the honey! Anyway, he tells me his spare time is taken up hand picking sweet clover to get rid of it. So I contend that sweet clover is a weed, for, according to Noah Webster, "A weed is any plant growing in cultivated ground to the injury of the crop or disfigurement of the place."

The years of 1914 and 1915 were not good honey seasons, and beekeeping was at a low ebb. In fact, beekeeping in itself is considered a precarious occupation in that it sometimes fails in one season to give a man a straight salary while another year it gives him more than he deserves.

The season of 1914 gave me no honey worth mentioning, and when feeding time came three fat steers obligingly paid the bill. The following year was a light crop of honey, but a good crop of wheat at a fair price helped me out. So with me it seems almost a necessity to combine the two occupations. 1916 was an extremely successful honey year, while 1917 was a light crop but an excellent price, and the bees made ends meet and some surplus besides. So while beekeeping has been somewhat in the background it is rapidly coming to the front.

Of course combining the two occupations makes one very busy, but there are various ways labor may be lessened. In the first place our land lies together with no off place which always makes extra work. Then the bees are all together with no out apiaries, which saves time and gasoline for a car. I find no time for the grafting method of queen rearing, but simply raise brood to the super above and replace with empty combs. This gives me in ten or eleven days all the queen cells I require to form into nuclei, and to re-queen with later. Then my time is not taken up with swarms as this method usually stops that also. I have a lawn-mower but do not use it in the apiary. A flock of sheep make a fine job of mowing the grass. Then while I tried to give them a weekly examination I found in war time they could do with three in a season—one in fruit bloom, when I clipped the queens' wings, then at the commencement of the clover flow, when I put on excluders and raised the brood to the supers, and then again at the latter end of the buckwheat flow, when I ascertained how much feed they required and noted their condition for wintering. Between examinations I observed their conduct at the entrances, and attended to any I suspected were weak or queenless. I leave the bees packed along the sides in their winter cases all summer. To remove the case takes time and they are cooler and better in outside cases. Then in the matter of feeding much time can be saved. My old method was to bring the water to a boil, put in sugar, then boil again. Waiting for it to boil the second time is what tries the patience. Now I fill an ordinary wash boiler with water, bring it to a boil, then put the water in a small honey tank placed high enough to allow the syrup to run from the tap into an ordinary pail. Then I add two sacks of sugar and stir with an ordinary turnip hoe, and as soon as dissolved the syrup is just the right

temperature for feeding. Then the feeders are large sap pails used for making maple syrup in my farming capacity. These are some of the various ways you can lessen the labor when your hired man goes to the trenches.

Then with farm help so scarce there are various ways the farm work can be lessened by the use of wide implements. For instance, four horses on a three-furrow plow gets over more ground than a single plow, while wide harrows, wide seed drills, and wide cultivators help to a great extent; but in this time of stress and lack of labor we look to the tractor plow to bring relief in the coming years.

Honey prices have been excellent this season, but strange to say, all things considered, I often long for the good old times when wages were \$1.00 per day, barley 50 cts. a bushel, clover honey 6½ cts. a pound, and peace reigned supreme. This year I sold to storekeepers in small quantities at 15 cents. They were astonished at the big price, and wanted to know why honey was so high in price. Was not God's sunshine as free as ever it was? But I hung out for my price and went home singing "If you want honey, you must have money, for its money, money, money, everywhere." But on reaching home, like the woman at the counter where the goods went up 60 cents while she was considering what to buy, I found when I returned a letter awaiting me offering me 15 cents, f.o.b. my station, for the entire crop, which would be much better than selling in small quantities.

Some people consider farming monotonous, so in amalgamating apiculture with it you have variety. Variety you know is the spice of life. We would not care to plow all the time—our feet would get tired. We would not care to extract honey all the time, we would not know what to do with it. So with Browning we would say:

"Variety is the spice of life,
And makes life what it ought to be."

A good deal of our apiary work comes in between our busy seasons on the farm, but there are times when apiculture seems to be antagonistic to farming. For instance you often have to extract when you are badly needed to make up the necessary number of men to draw in grain; but in many ways they glide along together.

With present labor conditions I must admit our business is not altogether satisfactory. Not half enough help and next year will be worse if farm boys are taken. It seems to me we have gone to the limit in production.

We are anxious for the end of the war. We worked hard last season and are ready to do the same next season, but do not care to be classed as disloyal, unpatriotic and profiteers by people who think our prices too high. I do not think the average farmer makes over five per cent. on the amount invested in his business plus a laborer's pay for his own and his wife's work.

People say if ever there was money in farming it must be now, and that owing to the war the consumer is at the mercy of the producer. Our great trouble is lack of man power. The cost of production is high, so the selling price must necessarily be high. We admit prices for honey and other commodities are high, but with Tennyson we would say:

"As I dipt into the future far as human eye can see."

I predict that prices will be still higher another year, no matter what the outcome of the war may be.

But if the food situation is as serious as we are told, why are they continuing to draw from our experienced farm help when so many in towns and cities are

still doing nothing in the production of food? I do not think there are many farmers represented on the exemption tribunals.

I am glad to see that our honey committee are commanding the respect of the honey dealers who are paying the prices set by the committee and even more. I think we farmers and beekeepers, the sellers, have a better right to set the price than the buyer. The specialist in beekeeping of course has more bees, and in a good year makes a lot of money; but when lean years follow in succession he needs to be very optimistic and wait for the good years to come; for everything comes to those that wait.

Good stores are the great essential in wintering. Lots of young bees come next, and in a hive not too large that they may retain the heat. In nuclei or small colonies contract the hive by taking out two combs in an eight-frame hive and insert a division board and they will be as snug as "a bug in a rug."

I prefer the sealed cover to the absorbent cover. Years ago I tried the absorbent plan with poor success. Then I tried using paper, at first only partially covering the top of the hive. Then as my confidence strengthened in the sealed cover I covered the whole surface. The next and following years I added an extra thickness, and still more, as if their very life depended upon it. One year, as sometimes happens, I forgot to pack one at all, and to my surprise in the spring it was strong and in good condition. This shook my faith, however, that so very much depended on the packing; but the sealed newspaper cover was on all right, which proved that the sealed cover was doing its work. But I think good stores the great essential, packing and other things in connection with wintering of minor importance. Mr. J. L. Byer, in a recent issue of "Gleanings" struck the key-note when he said in his title "Cellar or out of doors it makes very little difference, provided there is an abundance of good stores." It seems to me there are great possibilities in apiculture at the present time.

We do not want an exorbitant or prohibitive price for our honey in comparison with other similar commodities, but will leave that to the law of supply and demand and the honey committee.

We have been dictated to regarding how to farm. Then we are told to produce more, but not so much in regard to bees and producing honey. We were told to plant an extra supply of potatoes. We did, and got the enormous sum of \$1.00 per bag. Producing more and taking experienced men off the farm do not work together, but only defeats the object they are trying to attain and will result in the land being only half farmed.

In taking efficient farm help there will be danger of lack of food, not only for the allies but for ourselves as well.

May God speed the day when the Kaiser and his associates, to use the words of an old familiar song, will be "Rocked in the cradle of the deep."

MR. NEWTON: I cannot agree that stores are the essential thing for wintering bees. I think a good queen is the most essential thing.

MR. WEBSTER: Remember, if your stores are no good the good queen will not be any good.

MR. SIBBALD: You could not winter your good queen without stores?

MR. DUNN: I doubt if honey will ever be the price it has been in the past. It will always be higher in price. If honey is three times the value of fat as a food why should not it be three times the price?

MR. MEYERS: Mr. Webster made a point of saving time, and I would like to ask him why he boils the water for melting the sugar? If you use soft water you will not require to boil it.

MR. WEBSTER: I find that the sugar will not dissolve as well in cold water as it will in hot water. One fall I did not boil the water and I had poor results.

MR. SIBBALD: I think it is much better to boil the water.

MR. TILLSON: I am very much interested in the question of sweet clover. You seem to have taken the stand that it is a weed. Do the bees get much honey from the sweet clover?

MR. WEBSTER: I was under the impression that they did not bring in very much.

MR. DUNN: We have had some experience, and some years it makes the honey cloudy. I think the bees make a lot of honey from sweet clover when there is plenty of it.

MR. NEWTON: I never have been in favor of sweet clover, but it certainly produces a lot of nectar. My brother-in-law had his bees swarm on sweet clover the same as they would on ordinary white clover. It was about the 15th September. I sold about a thousand pounds of sweet clover honey in British Columbia, and they wrote back and told me they did not want any more of it, that they could not sell it. Mustard will, once in a while, yield honey, but not every year by any means.

MR. MEYERS: We have abundance of sweet clover, but we seldom get sweet clover honey. A few years ago we got a crop of it, and it was a little darker than clover honey.

MR. HERSHISER, Kenmore, N.Y.: When the honey flow is good, sweet clover makes good honey, but when it is a poor flow the sweet clover honey has a greenish appearance and a greenish taste, if you can understand that. It is said that they get a sweet clover honey crop down south, and I believe that in Alabama and Georgia they do get a crop of honey from sweet clover. I am of the opinion that in this part of the country we would be just as well off without the sweet clover.

MR. BYER: I am inclined to agree with that. I do not think the sweet clover amounts to much with us in this northern zone. I have never yet advocated the growing of sweet clover. Forty years ago my grandfather sowed some on clay land, and there is some of that sweet clover there yet. I appreciate the paper that we have just heard from Mr. Webster. There was a bit of humor, blended in with hard facts and common sense.

MR. COUSE: One can easily differ on that question of sweet clover. There is no question but what sweet clover honey will sell. Some of us do not know what golden-rod honey is, but it can be produced. It is a beautiful honey. Our family all like golden-rod honey.

MR. WEBSTER: From a farmer's standpoint I do not think sweet clover is good, because it is hard to get rid of once you get it on the farm.

MR. COUSE: I do not want to see it grown where it will mix with other clovers. There are great stretches of country in Muskoka where it might be grown to great advantage. It makes a splendid pasture for sheep or cattle. If they could get it growing up in the rocky country of Muskoka it would make good pasture for sheep. It would help that country greatly. There is a tremendous stretch of country in New York State that does not grow anything, and if sweet clover could be grown there it would be a great benefit. I know where sweet clover was sown thirty-five years ago, and it is there yet. It will stay. I sold some sweet clover seed to a farmer and his cattle eat it readily, and this year he had a good crop of potatoes from the same land.

MR. BYER: I know a farmer who could not get any help and he had sweet clover. He did not know how to handle it alone and let it go to seed. He sold the seed to a neighbor for \$88, and the neighbor sold it for \$1,440.

MR. WEBSTER: I think he will be growing sweet clover every year.

MR. HERSHISER: There is plenty of golden-rod in my territory but my bees won't gather it. It is good honey to winter bees on.

MR. COUSE: At Niagara Falls the bees were gathering aster honey, and one hive had fifty pounds of aster honey. There was golden-rod in the locality but the bees preferred the aster.

THE CHAIRMAN: I have not had much experience with sweet clover, but a neighbor of mine has ten acres and this year was the first year that it was in flower, and if it is all as good as that I will put my bees near it every time. It was beautiful white honey and it came in fast.

MR. HABERER: If anybody has any sweet clover honey next year they might bring some to the convention and then we will be able to judge as to its merits. In our section of the country they grow a lot of onions, and they say it is easier to weed sweet clover than the ordinary clover because you can get a good grip on it. Don't be afraid of the sweet clover, if you cultivate the land properly you will not have any trouble. I have raised sweet clover on a small scale myself, and I did not have any trouble with it. It makes a very good pasture, and it is just as good as the ordinary clover for plowing under as a fertilizer. I would recommend any farmer to try a field of sweet clover, and I would advise the beekeepers to not be afraid of it because it makes good honey.

PAPER CONTAINERS.

ARTHUR SLADEN, OTTAWA.

The difficulty of obtaining tin containers, and the increase in price, led me to study this question. After making a thorough investigation of the subject I came to the conclusion that paper containers could be used, and had some manufactured, samples of which I have here, and any member who desires a sample is welcome to one. There are two ways of pouring the honey into the container. I came to the conclusion, after investigating the matter that it would be best to pour the honey into the container while still liquid. The other method is to wait until it becomes granulated and then cutting it into blocks put it in the container. This container is in two parts, one part being of wax paper and the other the same as a regular carton. The advantage of these cartons is that they come in the flat knocked down shape and can be very readily folded into the proper shape. The wax paper is folded out on a block made of wood. These cartons hold exactly two pounds of honey, and the larger ones five pounds of honey. Parchment paper that is used for typewriting makes an excellent paper for the inside of the carton, but it is difficult to obtain. The honey in these cartons was poured in in September, and by October it was solid. It consists of 90 per cent. of clover honey. This packing case will hold 12 five-pound packages of honey. I sent several of these packages to people whom I knew, and they said they would prefer the two pound package. For table use all that has to be done is to cut it in two and place one pound on a server and it is ready for the table and can be spread on the bread like butter. It is a splendid way to serve honey to children, because they then cannot smear it all over the cloth.

I hope when the war is over that by this means we will be able to ship honey to the ends of the earth.

Q.—What will be the price of these containers?

A.—I ordered only a sample lot of one hundred of each, and, consequently,

paid a high price for them, but even so the price is very satisfactory. They cost me, including the printing, \$30 per thousand, or \$3 per one hundred. I have accomplished what I set out to do, an economic package. The five-pound pail weighs half a pound, so that when you sell it for five pounds you are only giving four and one-half pounds of honey. Iron now costs more than honey, so that the consumer would be the gainer in the honey, and the producer would gain in the price he had to pay for the container.

Q.—What length of time does it take to put them up?

A.—It takes a little more time to put them up. I think the best way to fill them would be to first put the containers in the shipping case, and then fill them, and there would be no danger of their bulging, because they fit so tight that there would not be room for one carton to bulge. They have to be kept for a month before they harden, and by using a bottomless box as an extension you may pile them up as high as the top of the honey house.

Q.—What will be the cost of the packing cases?

A.—I cannot tell you that. This was made by our carpenter. If the beekeepers think it is a good thing they could combine and give a large order for these cartons and packing cases to a manufacturer, and then they could be secured at a much lower price.

Q.—Why could they not be secured through you?

A.—I am not doing a commercial business at Ottawa, I am only experimenting.

THE PRESENT AND FUTURE OF BEEKEEPING.

E. R. ROOT, EDITOR, "GLEANINGS IN BEE CULTURE," MEDINA, OHIO.

I come to you under a little different circumstances this year, and I am glad to say that I am now an out and out ally of yours.

I can talk quite freely here on the honey question, because we do not buy any honey in this country, but over on the other side where we buy honey it is sometimes difficult for me to talk as I would like to. I gave an address in New York State not very long ago, and afterwards I was in New York City and a merchant there said to me, "Mr. Root, you have spilled the beans." They could no longer buy honey at the prices they had been paying. The statement I made at the Field Meeting was this: "Honey is going up, there is talk of peace being declared by Christmas, and if it is, honey will not go up, but unless there is peace declared honey will go up." The trouble was that I had told the truth, and what I predicted came true, and honey did go up in price and the brokers could not buy it at the old prices, and of course they did not like that. After I had talked to some of the brokers about it, they said to me: "If you had just kept your mouth shut everything would have been all right, and we could have bought honey at our prices." I almost began to think that what Josh Billings said was true: "What is the use of knowing so much, when so much you know ain't so." But the worst of it was that what I had said was true and prices continued to go up. Honey was about 10c. or 12c. at that time. They were selling it on the New York docks at 12½c. One broker admitted to me that he had been able to clean up \$20,000 in a three minute conversation. He turned to me and he said: "If you had been talking with the representative of the Italian Government and you had a chance to make \$20,000 would you let it go by or make the money?" I did not answer his

question. I did not know what I would do. It makes a great deal of difference who's ox is gored. This broker said they called him up and asked him if he had any honey? He asked the price they would pay, if they would give him 20c.—and honey was then only 13c. And he said: "What do you think? They took me up right on the jump." I do not want to defend the policy of the broker. I do not know whether you would have done the same thing if you had the chance or not. There was a large amount of honey sold to the Allies last year, and I don't blame a beekeeper if he makes a little money, because he has to take the risk of not getting any crop some years and of getting only half a crop and of disease and everything else, and when he gets a chance to make a little extra money he is entitled to make it. Dr. E. S. Phillips rather surprised me when he said, "What are you going to do about advertising this year?" We pay \$6,000 a page in the *Ladies Home Journal* and \$1,000 a page in other magazines to advertise our own brand of honey known as the "Airline" brand. The price of honey had got down very low and we began that advertizing in 1915. I did not believe that any beekeeper could produce honey at 5½c. per lb. and make ends meet. At that particular time honey that used to bring 6 and 7c. was offered to us at 2¾c. Southern honey was being offered at 2c. You all remember that time. Cotton was away down in price and everybody was saying, "Buy a bale of cotton." And now we wish we had bought a few hundred bales. After we started to advertize the honey the price began to go up, until it got to 9c., and we kept on advertizing and it went up to 10c. I am speaking of our side of the line: in Canada your prices were 2 or 3c. higher. Dr. Phillips said to me that he thought it was that campaign of advertizing that brought up the prices. I do not know whether it did or not. In the month of February the Allies began to get out of sugar, they had to have a substitute, and the only substitute they could get was honey. The brokers were buying honey at 9c. and 10c. and selling it at 12c. and 13c. Some lots were sold on the docks at New York at 14c. Then you could not buy any honey for less than 14c., and the beekeeper who had sold at 9c. was kicking himself because he did not hold out for 14c. The price f.o.b. at station is always 2c. less than the market price New York. It costs about one cent. for freight and then the broker adds on another cent. When the Germans started their drive into Italy and the Russians collapsed, then it was known that the war would not be over this year, and the price of honey at once began to rise. One grocer in Cleveland was retailing comb honey at 20c. when we were advising beekeepers to hold it at 40c. I actually found a number of cases where comb honey was being sold in ear lots at less than the ear lot price of extracted honey. The Allies were asking for extracted honey. Some years ago, owing to over exertion, I had a nervous breakdown, and for one year the doctor would not allow me to have any sugar or sweets, and every time I passed a candy store it gave me a great craving for sweets. You have not any idea what that craving is unless you have experienced it. The Italians had been without sweets for a month, and I have some idea of the craving their soldiers would have for sweets. They must have it and they were willing to pay almost any price to get our honey. Professor Jeager, the President of the National Beekeepers' Association, said to me, "The Germans are out of sweets, and they are using saccharine instead. The Allies have very little sugar." I stood on the docks in New York in the latter part of August, and I saw 2,000 tons of honey piled up on the docks. The pile was 15 feet high and 60 feet wide and 400 feet long. I was told to go down there and get some photographs of it. I could not believe it was all honey. I saw the manifests and the price that had been paid and that it was going to Italy. It was one entire shipload, 2,000 tons of honey. It was clover honey gathered from

all parts of the United States. After great difficulty I managed to secure a photo of this honey, and it will appear in the *Ladies' Home Journal* in a short time.

That was only one shipment going to Italy. Why were they so anxious to get the honey? Simply because a man who has been in the trenches and without sweets has a great longing for something to take its place, and the Government cannot afford to give the soldiers honey, but they sell it to them at the rate of \$1.10 per pound. They are also buying in small lots. They are buying ear loads of these little jars of honey, it is sent to the trenches for the boys so that they will have something to sweeten their food. Before the war broke out the German soldiers carried sugar with them when they went on a long march, and at each stop they took a small portion of sugar to brace them for the balance of the journey. There is no food that gives a man energy like sugar. Honey is 20 per cent. water and has gone through one stage of digestion. The only thing the boys can buy at the front in the nature of sweets is chocolate candy and honey, and the boys are tired of the candy and want honey, and there is and will be a great demand for it. That great demand for honey is not going to let up for some time. The future of beekeeping was never better than it is now. Whenever I see deep snow early in the season I think it is a good omen for the clover business. Unless the clover is protected by lots of snow we will not get a good crop of clover honey. Of course we may have lots of snow and still have it dry in the spring, but the chances for a good crop next year look good to me.

Here is the kernel of the whole thing: The demand for honey has forced it into the homes of the people of the United States and of Canada. Our advertising campaign has introduced honey into the homes of the people of this continent. We have our special brand of honey on the Pullman cars of the railroads of this country, and it is handled by grocers and dealers. We are sending out tons of literature to get honey into use in the homes. We are doing it right now because of the fact that they cannot buy sugar. We have only a very small supply of honey, and if we were willing to sell it in bulk we would make a big scoop on it, but we are looking to the future. We could actually make more money out of the honey by selling it in the original containers in New York and never handle it at all. There is very little honey in the United States to-day. I hope we will have sufficient, so that Mrs. Housewife will try our honey. One of the things the housewife has discovered is that a level teaspoonful of honey in a cup of coffee is better than sugar. The sugar does not dissolve and is, in a great many cases, left in the bottom of the cup after the coffee has been drunk, whereas the honey dissolves at once. Honey makes a very superior article of candy. We had a large supply of sugar, and our employees were buying it, and I said to them, "If you will stop buying the sugar I will let you have honey at cost," and they took the honey. Honey is being introduced everywhere and the housewife is getting used to it, and I believe the conditions that prevail in the United States in that respect also prevail in Canada. I would not dare say what the price of honey will be next year. The man that holds up for the price next year will get it. A man in Minneapolis said, "I did not have a big crop of honey, but I made more money this year than I did other years when I had a big crop." He told me that at one time he had 150 lbs. to the colony and he sold it at 6c. per lb., but now he was getting twice as much for his honey and making more money on a smaller crop. I do not believe, and I don't think any of you believe, that peace will be declared by Christmas or next Christmas. It will be more than a year before peace is declared, and the world is hungry for sugar and sweets, and it will take a long time to supply the world with the sweets they are hungering for. The sugar beet lands of Germany have been used for growing

other crops. They are raising sugar beets in the United States, but there are no freight cars to haul them to the factories. Sugar beets can be frozen and still be utilized, but the way I saw them lying about waiting for freight cars in the State of Michigan I feel sure that a great many thousand tons of them will never be made into sugar.

Whatever the price of honey is with you now add something to it next spring. The demand for honey will be so great that the outlook is good for the honey business. You are located on some of the best territory on this continent, and if you can buy pound packages from the South and bring them up here you ought to be able to increase your output and make a large amount of money next year. If you can secure a crop of honey next year you are bound to make money. If you can produce three times the quantity that you ever produced before, you would not be putting too much on the market. There are between seven and eight billion pounds of sugar sold each year in the United States. Honey is only 2 or 3 per cent.; suppose you run it up to 10 per cent. then you would not have a sufficient supply to fill the great demand that there will be for honey next year.

The beekeepers of Canada have been buying bees in large quantities, and if I had known you were going to buy in such a large way I could have saved you some money. The demand was so great that some of the beekeepers of the South got wild and sent the bees up in bad shape and some of them sent black bees. Some of the purchasers have not been able to get replacement even yet, although I have the promise that the bees will be delivered next year, but some of these promises are mighty slim. I want you to be careful to make inquiry before you buy bees next year, so as to avoid getting diseased bees. I am going to help you all I can, and will refuse advertising space to any dealer who does not give a square deal.

I do not believe that there is anything further for me to say on the honey question, but I can say to you frankly that I believe that prices are safe and are going to stay there, and I do not believe there is any doubt but what you can sell three times the honey you can produce next year.

THE CHAIRMAN: I am sure we have been very much pleased with the address we have had from Mr. Root. I am sure he would be pleased to answer any questions at this time.

Q.—Is there any way to get redress from these men if they do not fill our orders in an honest way?

A.—I will tell you what you can do. Write to me and state your case and what has been done, and I will put it up to these men that they cannot get any more advertising unless they make these things right. I have had a number of men on the rack about this matter, and I have said to them, "If you want to get advertising you have got to make good."

MR. CHRYSLER: I have had some experience in buying pound packages of bees, and I believe the men who shipped them gave value for the money they received. I believe they made a mistake in the queens. Out of 50 pound packages I only got 24 queens that would lay.

MR. ROOT: So far as I know every dealer who advertised with us last year has agreed to make good, with one exception, and I have got him on the rack. Some of them made the price lower than they could afford to ship them for. If you get a two pound package and get two-thirds of them alive you are doing well. The queen ought to be put in a cage; the old way was to just drop the queen in. I never knew a case of the queen being killed if she had been put in a cage. A bottle of syrup for feed is better than candy. I have told these men south that they are not to take orders unless they can deliver the bees, and deliver them in good condition.

REPORT OF THE SECRETARY FOR 1917.

MORLEY PETTIT, GUELPH.

The total number of memberships in the Ontario Beekeepers' Association received during the year ending October 31st, 1917, is 1,113. Four hundred and sixty four of these memberships came in from affiliated societies and the balance of 649 by single subscriptions.

There have been two new county associations formed during the year, viz., Bruce and Parry Sound. The Association referred to last year as the Nipissing Association is called the Temiskaming Association and is to be known by that name in future. The Essex, Norfolk, Simcoe and Stormont Associations, having less than the required number of members, have been dropped from affiliation for the time being. This leaves twenty-three affiliated societies in good standing.

The following is the list of affiliated societies and their memberships:

Members.		Members.	
Brant	29	Oxford	28
Bruce	12	Parry Sound	10
Carleton	20	Perth	19
Grey	14	Prince Edward	10
Haldimand	18	Renfrew	11
Halton and Peel	16	Russell	18
Huron	19	Temiskaming	13
Kent	20	Victoria	16
Lambton	9	Wellington	29
Leeds and Grenville	18	York	10
Lincoln and Welland	32	Toronto	51
Middlesex	42		
			464

It will be seen that there is an increase of memberships received both from affiliated societies and by single subscriptions over last year.

The queen order business was continued during the year. One hundred and forty-eight members purchased 1,078 queens at an average of 66 cents each. One hundred and eighty-one orders in all were filled.

In tendering his resignation on account of severing his connection with the Department of Agriculture, the Secretary wishes to extend his thanks to other officers and members of the Ontario Beekeepers' Association for co-operation in various ways in promoting the interests of the Association. As a beekeeper at Georgetown, Ont., he hopes to retain his connection with Ontario beekeepers as far as business duties will allow.

REPORT ON TORONTO EXHIBITION.

J. D. EVANS, ISLINGTON.

We got along very satisfactorily this year with the directors of the Toronto Exhibition. I made the suggestion that the exhibitors of honey should pay a license of \$25, and they accepted it at once. I hope next year that we will have more exhibitors. This year we had only two, and one of them had a license to sell honey.

REPORT OF CROP COMMITTEE.

WM. COUSE, STREETSVILLE.

The Crop Report Committee of the Ontario Beekeepers' Association met on Wednesday, August 15th. Five hundred beekeepers from all parts of the Province reported an average of 51.6 pounds per colony which is about the average reported from year to year. While most of the south-western counties have had short crops, the eastern counties have done better than usual. The market has been bare of honey for several months however, all the necessities of life have advanced and beekeepers expect some increase in price, although the advance over late winter prices recommended is slight.

The committee recommends the following prices:

Best quality light extracted, wholesale	14c. to 16c. per lb.
Best quality light extracted, retail.....	17½c. to 20c. per lb.
Best quality comb, wholesale	\$2.00 to 3.25 per dozen
No. 2 comb, wholesale	\$2.00 to \$2.50 per dozen

These prices are being paid at the present time in Ontario and United States' prices have advanced in even greater proportion. Surplus honey from Western States is going direct to Europe for use by the armies of the allies, leaving a greater shortage of honey on the American Continent than ever before.

Beekeepers are cautioned not to sell second grade honey for table use, but to sell it to biscuit manufacturers. The prices recommended are f.o.b. in 60 lb., 10 lb. and 5 lb. tins, the former being net weight, the latter being gross weight. The lower prices should be quoted to wholesale and commission men and the higher wholesale price to retailers. The size of the order and style of package should be taken into account in determining the retail price.

Signed by the Committee:

WM. COUSE,
H. G. SIBBALD,
W. J. CRAIG,
F. W. KROUSE, *President*.
MORLEY PETTIT, *Sec.-Treas.*

Guelph, Ont., August 17th, 1917.

There is really nothing new in this report. As one does things he gets more confidence, and is quite willing to try again. This year we did not put the price as high as we might have. We did not know that there was such a tremendous demand for honey on the part of the Allies. So many things have occurred that were not within our knowledge that we cannot be held responsible for all or in fact any of them. You may ask thousands of people when the war is going to end and they cannot tell you. Nobody knows. I bought honey in Montreal a week ago at 19c., and I bought it to fill orders. I sold honey at 15c. and then had to pay 19c. to fill my orders.

Mr. SIBBALD: I do not think I can add anything to the report. I do not think the beekeepers blame the committee, they were all surprised. Mr. Root has given us some advice for next year and I hope when the time comes we will know what is best to be done in the interest of the beekeepers of Ontario.

Mr. Root: I am not afraid that the price will go down. Your committee did not do any different from what we did on our side. We thought the war was

going to be over by Christmas, and that the prices would drop, and they were dropping. If peace had been declared I do not think the prices would have been up to 19c. I think the price would have been nearer what you got at the commencement of the season. As long as the demand prevails for honey in Europe the price will continue to advance. We are now getting 25c. for it retail in 60 lb. cans.

MR. COUSE: Have the United States Government asked the beekeepers to increase their product?

MR. ROOT: Yes, there has been more literature on the bee business and on speeding up of the honey product sent out from the Department this year than ever before. The Government are ascertaining the prices at which the product is being sold and they are sending out the information to all dealers.

MR. COUSE: It surprised me to see that at Buffalo and in that district 75 per cent. of the beekeepers are comb honey men and 90 per cent. of the beekeepers in the Toronto district are extracted honey men.

MR. ROOT: In the Denver district you will find they are 50-50. In California it is mostly all extracted honey.

MR. HERSCHLISER: There seems to be a disposition on the part of the beekeepers to apologize for the price of honey, but when we come to look at the price of other things it cannot be said that honey is high. Ten years ago wheat was only worth 66c. per bushel, and now it is worth four times that price. Compare the price of honey with the meek and lowly bean. Beans exceed the price of clover seed, they are worth \$11 a bushel now. Ten years ago they were only worth \$2.50.

REPORT ON APIARY INSPECTION AND DEMONSTRATION IN ONTARIO FOR 1917.

MORLEY PETTIT, PROVINCIAL APIARIST, GUELPH.

A conference of the Ontario apiary inspectors was held at the office of the Apiculture Department, Ontario Agricultural College, on May 16th. As few changes had been made in the list of inspectors, the discussions were of an advanced nature which made them very helpful in systematizing the work and bringing about uniformity of methods. Perhaps the most important action taken was the framing of a resolution asking for a change in the Foul Brood Act, calculated to control the sale and shipping of diseased bees from one locality to another. The proposed change would substitute for clauses 5 and 6 of the Act the following clauses:

5. Any owner or possessor of diseased colonies of bees or of any infected appliances on beekeeping, who sells or barter or gives away or removes from the premises such diseased colonies or infected appliances, or who exposes in his beeyard or elsewhere any infected comb, honey or other infected thing, shall incur a penalty of not less than \$50.00 nor more than \$100.00, or he may be imprisoned for any term not exceeding two months.

6. Any person who sells or offers for sale or barter or gives away any bees on combs or used appliances for beekeeping, before being authorized by the inspector so to do, shall incur a penalty of not less than \$50.00 nor more than \$100.00, or he may be imprisoned for a term not exceeding two months.

It will be seen that the purpose of this desired change is to prevent the moving or disposal of bees which may be diseased and still have not been inspected. It has been found that there is a great deal of traffic in colonies of bees and used appliances

and that disease is spread by this means. At present the law only allows the inspector to prevent this when the apiaries have previously been inspected and found diseased. Many apiaries are advertised for sale at a season when they cannot be inspected, and under the Act as it now stands the sale cannot be prevented unless the bees had previously been found diseased even when they are known to be in a diseased district and are very likely to be infected.

The following is a list of inspectors and the counties in their charge:

Angle, W. B.	Wentworth, Brant, Victoria, Hastings, Peterborough.
Armstrong, Jas.	Lincoln, Welland, Frontenac, Gréville, Leeds, Lennox.
Christian, J. E.	Muskoka, Simcoe.
Denison, Alf.	Dundas, Prescott, Russell, Gloucester, Carleton (Osgoode).
Devins, C. J.	Grey, Dufferin.
Fowler, R. A.	Perth, Waterloo.
Gowan, L. B.	Norfolk, Haldimand.
Hunter, R. M.	Oxford.
Hutchinson, E.	Wellington.
McCauley, J. H.	Halton, Peel.
Robertson, N.	Essex, Kent, Elgin.
Rumford, S.	Lambton, Middlesex.
Schrank, J. S.	Bruce, Huron.
Scott, W.	Northumberland, Prince Edward.
Selwyn, H. H.	Glengarry, Stormont, Lanark, Renfrew, Carleton (Ex. Glou. Osg.)
Weir, W. A.	Durham, York, Ontario.

The backward spring and frequent rains in early summer made the inspection work very difficult. It also held back the home work of the inspectors so that in many cases they refused to leave home when the weather became favorable for inspection work. On this account the money available for inspection and demonstration work was not all used and not nearly all of the known cases of disease were attended to. This is one of the worst features of our system of inspection by men who are not devoting their whole time to the Government work.

Because all beekeepers in the Province cannot receive attention the policy of this department in apiary inspection has been to give the services to those who appreciate it most. This also, coupled with the fact that at no time have we been in a position to take care of all known diseased areas, renders any sort of statistical report of little value. A statement of the percentage of inspected apiaries found diseased under such a system, while it might be expected and has usually been given in a report, is of no value under the circumstances. Unfortunately comparatively few apiaries infected with either disease have been found to be entirely cured, yet it might safely be said that the expenditure of time and money from year to year has not been without benefit in the same way as the expenditure of life and ammunition which has merely held entrenchments against an enemy without making very great advances. Our leading beekeepers are convinced and have stated publicly that great headway is really being made by the education of beekeepers who are learning to act as their own inspectors and are learning to regard either variety of foul brood as no less an enemy but one which can be kept very much under control.

Seven hundred and seventy-eight apiaries were inspected and 203 of these were found to be diseased with either American or European Foul Brood. Eight thousand five hundred and fifty-seven colonies were examined and 1,132 were diseased. Two hundred and seventeen colonies were destroyed or treated by the inspector. The owners of the other diseased colonies were instructed as to methods of treating them and most of them reported afterwards that they had followed out instructions.

The legislation referring to the disposal of bees was frequently enforced by inspectors and in several instances sales were stopped. As far as possible all intended sales and removal of bees were discovered and examination made before bees were removed.

One unfortunate feature of the season was the shipping of some bees infected with European Foul Brood from Niagara district to Kenora district. This district of New Ontario is becoming famous as a clover seed producing area and the District Representative has been encouraging the keeping of bees. As soon as the presence of the disease was discovered he communicated with the Provincial Apiarist and our most experienced inspector, Mr. Armstrong, was sent up to look over the case and reports that he has hopes that through the prompt action of the District Representative and of local beekeepers the infection has been practically wiped out.

In addition to the personal visits of inspectors, instructions were carried to beekeepers by means of local apiary demonstrations to a greater extent than ever before. Eighty-three of these meetings were held in all parts of the Province as indicated by the following schedule:

County	Place	Attendance	County	Place	Attendance
Brant	Echo Place.....	45	Middlesex	Lambeth	70
Bruce	Teeswater.....	27	Middlesex	Strathroy	25
Bruce	Tara.....	29	Middlesex	Appin	20
Carleton.....	Metcalfe.....	25	Middlesex	Ailsa Craig.....	60
Carleton.....	Ramsayville.....	45	Norfolk	St. Williams.....	75
Carleton.....	Ottawa.....	15	Norfolk	Langton	50
Carleton.....	North Gower.....	35	Norfolk	Waterford	35
Dufferin	Grand Valley.....	.....	Ontario	Whitby	30
Dufferin	Camilla	5	Oxford	Tavistock	38
Dundas	Hainsville	25	Oxford	Mount Elgin	30
Dundas	Morewood	40	Oxford	Ingersoll	30
Durham	Periytown.....	30	Oxford	Burgessville	28
Durham	Port Hope	18	Peel	Caledon	30
Elgin.....	Orwell	15	Peel	Cooksville	80
Elgin.....	Dutton	34	Perth	Millbank	17
Essex	Tilbury	30	Perth	St. Mary's.....	19
Essex	Staples.....	35	Perth	Stratford	20
Frontenac	Battersea	35	Peterborough	Lakefield	15
Grenville	Prescott.....	15	Peterborough	Indian River.....	20
Grenville	Kemptville.....	30	Peterborough	Warsaw	50
Grenville	Merrickville	40	Prescott.....	Vankleek Hill.....	55
Grey	Chatsworth	30	Prince Edward.....	Woodrows	30
Grey	Heathcote	35	Prince Edward.....	Bloomfield	10
Grey	Owen Sound	27	Renfrew	Pembroke	14
Haldimand	Selkirk.....	30	Russell.....	Russell.....	40
Haldimand	Hagersville.....	30	Simcoe	Unthoff.....	20
Haldimand	Dunnville.....	30	Stornont	Harrison's Corners.....	14
Halton	Burlington.....	20	Victoria	Cameron.....	25
Halton	Milton	15	Victoria	Finelon Falls	11
Hastings	Trenton	25	Victoria	Woodville.....	30
Hastings	Crookston	25	Waterloo	New Hamburg	35
Hastings	Roslin.....	45	Waterloo	Ayr	10
Huron	Lucknow	30	Waterloo	Prescott.....	15
Huron	Clinton	35	Waterloo	Kitchener	45
Kent	Chatham.....	35	Welland	Stevensville	25
Kent	Ridgetown.....	45	Welland	Fenwick	75
Lambton	Arkona.....	50	Wentworth	Hamilton	40
Lambton	Mooretown.....	24	York	Islington.....	35
Leeds	Mallorytown.....	100	York	Queensville	30
Lennox	Napanee.....	40	York	Schomberg	30
Lincoln.....	Grimsby.....	45	York	Gormley	30
Lincoln.....	Smithville.....	36			

The total attendance at these demonstrations was 2,686 or an average of 32 persons at each. Considering the highly specialized nature of the subject, and the fact that comparatively few in a community are interested in bees, also that these demonstrations have been held extensively throughout the Province for seven years, it must be admitted that they are meeting the desires and requirements of Ontario beekeepers.

These meetings are conducted in almost every case by the inspector for the district. Some of them were interfered with by unfavorable weather, but the people have learned that bee demonstrations will be conducted punctually as advertised regardless of weather conditions and that they will not be postponed under any circumstances. The inspectors were instructed this year to make the demonstrations as practical as possible and to reduce public speaking to a minimum. They also agreed that wherever possible the actual manipulations of hives and combs in the apiary under natural conditions would be most acceptable and profitable to those in attendance. Wherever it seemed advisable the demonstrator was supplied with a trunk containing a great number of beekeeping appliances of the most modern design. One of the bee supply firms has also supplied District Representatives with exhibits of this nature and in some cases these were used.

The sincerest thanks of those responsible for these meetings are due to the beekeepers and their wives who so freely provided hospitality, also to the District Representatives and officials of Beekeepers' Associations who so kindly rendered valuable assistance in making the programme helpful and interesting.

FIRST REPORT OF COMMITTEE ON RESOLUTIONS.

M. B. HOLMES, ATHENS.

I beg to make the following report of the Committee on Resolutions:

Resolved, That this Association, through its secretary-treasurer, undertake to conduct the purchase of package bees on the same plan as has been adopted by this Association for the purchase of queens.

We recommend this as a means of protection to our members. Signed M. B. HOLMES, H. G. SIBBALD, J. L. BYER.

As a member of the Committee I really feel that this should be adopted, not that I have been stung, but I believe it is a move in the right direction. I had something to do with the original plan for the purchase of queens and that has proved very satisfactory.

I have much pleasure in moving the adoption of this report.

The motion was seconded by Mr. Meyers and adopted.

QUESTION BOX.

(Answered by M. B. HOLMES, ATHENS.)

Q.—Why should I support the O.B.K.A., does not the Government help some?

A.—You should support the Ontario Beekeepers' Association because if you have a grievance of any kind you can bring it before the Association and they will help you out. They can do things for you that you could not do if you had

to stand alone. In unity there is strength. It is our duty to support this Association.

Q.—Which is best for a man to buy, one or two-pound packages of bees?

MR. BAINARD: The two-pound package would be the best provided they arrived in good condition. The few two-pound packages we have received have not arrived in good condition. The one-pound and half pound packages always arrive in good condition.

MR. MEYERS: A neighbor of mine last year imported several packages and he told me that from the two-pound packages he received about sixty pounds of honey, and that the one-pound packages only made good colonies by the fall. I would think the two-pound packages would be the better.

THE CHAIRMAN: The question is which would be the best package to buy so as to have them arrive in good condition. Two years ago I bought three-pound packages, and I shipped them back and asked to have them re-shipped to me the next spring, a two-pound package in a three-pound cage. They came to me in very bad condition, but when I had the two-pound package shipped in a three-pound cage, you could hold all the dead bees in the palm of your hand. The cage is too small, and I think that is one of the causes of the difficulty.

MR. TILLSON: I brought in 35 packages last year, half of them one-pound packages and half two-pound packages. The two-pound packages came with 50 per cent. more dead bees than the one-pound packages, and at the end of the season the one-pound packages were just as strong as the two-pound packages. Considering the difference in the cost I would prefer the one-pound package. If the two-pound package would come in good condition I would consider that they would be the best.

MR. ROOT: Enlarging the size of the cage makes all the difference in the world. Last season we used the three-pound cage for two pounds of bees and they shipped in perfect condition.

MR. NEWTON: I received some three-pound packages last spring. I have been dealing with the same man before, and he has given me a fair deal. This season he must have run out of three-pound cages, because he sent the bees in a two-pound package, and of course I had quite a few dead bees, but notwithstanding that I had good success. It was not a good honey season with us, but in twenty-four hours after I had released the bees from the hive every hive had eggs in it. With a one-pound package you have not sufficient bees to cover all the combs, consequently they must take longer to start, but they may come out all right at the end of the season. Some of my three-pound packages did not have one ounce of dead bees.

MR. HERSCHISER: I also got three pounds of bees in two-pound packages, and instead of getting three pounds I got almost no bees in these packages. Some of my strongest colonies were secured from the two-pound packages. One cause of loss in the two-pound package is the difficulty the bees had in getting at the food.

MR. STEWART: My experience has been about the same as that of the last speaker.

MR. CHRYSLER: I secured some two-pound packages this year, and there were a certain quantity of dead bees in each package. Why do the bees die? It is not on account of the cold, because they have nothing but themselves to keep warm. Occasionally they have no feed, but we have had some come along without feed and they were alive. I found that 30 per cent. of the bees in some packages were drones and it seems to me that they raise a number of drones down south.

Q.—Are Italian bees superior to Carniolan bees for gathering honey?

A.—I have very grave doubts whether there are any bees better than the Italian bees for gathering honey.

Q.—Will Italian bees build up in the spring faster than Carniolans?

A.—I would say yes.

Q.—What constitutes a farmer beekeeper?

A.—His constitution is very good because of the fact that he rises very early in the morning and exercises very frequently.

Q.—How can I re-queen with the least possible amount of work?

A.—Send your money direct to the Secretary of the Ontario Beekeepers' Association, and he will know where to place your order and the queens will come with full directions.

Q.—What is the best way to handle fermented honey?

A.—If the fermentation has reached the third or thirty-second degree bury it, I would put it right out of the way.

MR. HERSCHISER: Some explanation has been given without giving much information. Sometimes we do have fermented honey by reason of no fault of the beekeeper, and that honey can be brought back to a very good quality by simply heating it, the same as you would do to liquefy honey. The ferment will come to the top and it can be skimmed off, and it will give you a very good quality of honey. If the honey has not reached such a degree of fermentation so as to ruin it that would be worth trying. After it has gone to a certain point the only thing to do with it is to make it into vinegar.

MR. COUSE: I would not bury it, vinegar is worth 40 cents a gallon.

A MEMBER: Will ripened honey ferment?

MR. HERSCHISER: Of course it will. It may be placed in a cellar or some place where it will be exposed to the air, and it will gather sufficient moisture to begin fermentation on the top.

Q.—Would it be wise for the beekeepers to buy supplies and sell their honey co-operatively?

A.—That has been a live question, but the honey seems to go pretty rapidly this year. A few years ago at this convention we seemed to have plenty of honey at this season of the year. We have no co-operative society in connection with the Association.

Q.—Is it possible to eradicate European foul brood and save the combs?

MR. HERSCHISER: I think that is poor advice. I do not think anybody who has had experience with European foul brood will recommend the destruction of the comb. You will gain nothing by it. Where your bees have the disease you can be sure that there are numerous cases in your neighborhood, and the next season your bees are likely to be infected with it again. If you get a good strain of Italian bees you can get rid of the disease without destroying your comb.

MR. ARMSTRONG: If I had a bad case of European foul brood or American foul brood, and if there was a rotten comb in that hive I would not introduce it to another colony, I would simply put it into wax and into foundation afterwards. I agree that it is not necessary in every case to destroy the comb when you have European foul brood, but with American foul brood you cannot do anything else. There are some here who are thinking that they are going to have European foul brood and that it is going to wipe them out of existence. If you will take my advice and get Italian bees you will not have that trouble.

Q.—Who should carry on experimental work in beekeeping, the Ontario Agricultural College or the beekeepers?

A.—I think this Association should recommend certain experiments to be conducted at the Agricultural College. That is what the College is there for, and I believe before this convention closes something along that line should be suggested.

Q.—Please state the best way to introduce queens?

MR. SIBBALD: I think the best way would be to follow the directions on the mailing cage. The people who send out the queens usually send out directions with them; these are the best directions we can get. If I want to introduce a queen from my own yard I get the old queen and put her in a cage for a few hours and then I take her out of the cage and put the young queen in the same cage and give her a chance to release herself within a few hours.

A MEMBER: Then where do you put the old queen?

A.—She is generally killed. I put her in the cage first so that the cage will get the scent of the old queen, and the bees will cluster around the cage. Then when you put the young queen in the cage, the bees will feed her right away, and when she gets out there is no trouble.

Q.—Is upward ventilation necessary in a dry warm cellar?

A.—No, the upper portion of the hive is made tight and the hive is raised from the bottom. The circulation is provided from the bottom and not from the top.

MR. EVANS: I quite agree with you. I do not think there should be any ventilation from the top. I use quilts, and I want them to be tight. I object to the loosening of the bottom boards. If you do that you will have the bees falling out of the back of the hive. I keep my bottom board sealed. The ventilation in the front is all they require in the cellar.

Q.—Does any live bee ever alight on the floor of a perfectly dark cellar?

A.—Yes, you might ask what causes them to leave the hive. Perhaps they are ready to die.

MR. EVANS: I entirely differ from you there. I use an electric pocket lamp, and scores of times I have slipped into the cellar and flashed on the light and looked on the floor, and I never yet saw a live bee on the floor.

MR. CHRYSLER: The bee goes out to die.

MR. EVANS: The living bees drag the dead ones out to the entrance and drop them.

A MEMBER: We have a nice dry cellar and we have seen bees on the cellar floor.

MR. HOLMES: We agree that the bees fall from the hive, but how do they fall such a long distance from the hive? In my cellar they are scattered all over the floor.

OUT-APIARIES.

E. T. BAINARD, LAMBETH.

Out-apiaries are established for several purposes. In queen rearing several strains of bees may be reared by having each yard a few miles apart, Mr. D. H. Jones who was one of the first beekeepers in Canada to try it, had bee-yards established on the islands of Georgian Bay for testing the new races of bees he had imported from Europe.

A business or professional man living in a city where it would not perhaps be convenient to keep bees could place them just beyond the city limits and look after them during his spare time and holidays.

The greater number of out-apiaries are established by beekeepers for the purpose of keeping more bees than the home pasturage would support.

The number of colonies of bees that can be profitably kept in one location is limited by the amount of pasturage in the spring to build up on, and in the summer season for surplus. Some locations will support far more than others, depending on nature of soil and kind of farming carried on in the district, but most beekeepers find it inadvisable to keep more than 75 to 100 colonies in an out-apiary here in Ontario. But if having enough help to look after more in one day's work more may be kept.

It is better to have the home apiary just a little crowded before going to the expense of an out-apiary.

Some beekeepers might be successful with a home apiary where they are every day, but with an out-yard several miles from home they might be neglectful. A good test before starting an out-yard would be to divide the home-yard for a season and work part of it by examining the colonies say once a week, and seeing how successful you will be in controlling swarming.

The location for an out-apiary must of course be far enough distant from the home-yard not to interfere much with it, say 3 or 4 miles, and same distance from other apiaries; but always locate where the pasturage is good. It is worth while to vary a location a mile or more for the sake of having it where pleasant people live, or to secure a sheltered location, or having good roads.

In our own case we prefer placing our apiaries in the woods, and if possible on the north side of a good road. We then have them sheltered on at least three sides, the west, north and east. All we expect of the farmer is to provide us with a quarter acre of ground, and we do the fencing, levelling, and arranging the roadway in, also putting up a small portable building about 8 by 12 feet, bolted together at the corners.

We want out-apiaries so arranged that we can load them up at short notice, and move at practically little expense. This is one reason why we prefer closed end frames and wired combs. The easiest way to move an apiary is on sleighs in the spring while the bees are in the winter cases.

As to rent, some pay a fixed sum of \$10 to \$25, others pay a percentage of the crop, others pay so much for every swarm hived, at least 50 lbs. of honey should be given depending on the amount of trouble the farmer is put to by having you and your bees on his farm.

For visiting out-apiaries nothing is equal to an automobile and trailer or auto truck. You will find this especially true when you come to move bees in the summer-time from an out-apiary, and it is necessary to be in the yard maybe 8 or 10 miles from home at daybreak, in order to close the bees in their hives.

The tools used in the home apiary will do in an out-apiary, and during the busy season we carry all the time one set of tools in the automobile, consisting principally of bee-smoker, veil, hive tool, tin box with an extra supply of matches, small sharp saw wrapped up in a piece of cotton, and a small hammer. We never leave a smoker or veil at an out-yard. It might tempt visitors to use them; but we keep a hive cart at each yard.

Some of the advantages of out-apiaries are:—

Selecting the very best locations for honey production.

Selecting locations free of foul brood and other diseases.

Moving of a colony or a part of a colony from one apiary to another, and feeling sure that the bees will stay where they are put.

Some of the disadvantages of out-apiaries are:—

The problem of swarm control, especially when the weather is too cool and windy to open hives with pleasure.

The outside wintering of bees, so that the entrance to the hives will not become clogged up with dead bees during the winter months.

The damage done occasionally by thieves opening hives in quest of honey. The Heddon hive is almost proof against being robbed. The only remedy we have used is to leave honey in the building for them, and say little about it.

The spring visit, when we are anxious to know how the bees have wintered, is sometimes a difficult task on account of bad roads.

And if you are careless with foul brood out-apiaries will help you to spread it.

MR. DUNN: That is a good paper and I have enjoyed it very much. Mr. Bainard says he never leaves a veil or a smoker in the out-apiary. I do, because sometimes I might forget them. I have a beehive right close to the honey house, and no one knows whether there is a bee in it or not, but as a matter of fact there is nothing in it, and I just drop the veil and smoker in it and the key of the honey house, and never let anybody see me do it. Nobody will open up a beehive.

Q.—What kind of a trailer do you use?

MR. BAINARD: I have used different kinds. I got up a new kind this year. It is a combination of a trailer and a truck or tractor. We prefer the four wheel trailer.

APIARY LOCATIONS.

H. G. SIBBALD, CLAUDE.

— I suppose 90 per cent. of those present have already located, and what I have to say will not be of great interest to you, and on that account I am going to be brief.

If I were seeking a new location, the first point that would be of interest to me would be to find out if there was much clover grown in the district commercially. I put alsike clover in the first place in Ontario for the production of clover honey. Someone will disagree with me in that because they have other sources, but I think the majority of you will agree with me when I say that alsike clover is the main source of honey in Ontario. If I were looking for a location I would visit a seedsman and inquire of him where clover was grown. They will tell you if you are looking for a location for bees. Another way would be to inquire from a can manufacturer or a supply man and find out where the honey supply business was done, but you must be careful not to get too close to another bee-man. After you find a good clover location you should look around and see if there is a variety of bloom in the locality, because clover does not bloom the whole year round, and we must have some other flowers that come in time so as to build our bees up in the spring. Basswood is a thing of the past in some locations, but if you were lucky enough to find a location in the northern part of the Province of Ontario where there was basswood, then you would have a good addition to the clover supply. Next to that I think I would put buckwheat. If you can secure a location where buckwheat is grown then you would have two chances of coming out all right. Even if the buckwheat will merely give you sufficient to winter your bees you will be a gainer. If you can

get a combination of the three, basswood, clover and buckwheat then you would be in a land of milk and honey. I would put the clover in the first place, because I know of locations where there is plenty of clover only, and there the beekeeper makes a success of the business.

In the spring of the year the fruit bloom is a very great help. Dandelions are a help and the hard maple are very often a great help in the spring. Some years when the weather is good the bees get in a great deal of honey from the hard maple. Later, we have the sweet clover, the golden rod and the aster. I have not had very much experience with any of these flowers, although this year I do think we had a little help from sweet clover. When the alsike is good the bees do not bother very much with the sweet clover.

One point that you should consider in a serious way before you select your location is to see that there are no other beekeepers in the same location. That is a point that is overlooked by our College at Guelph. The subject of apiary location should be on every short course in beekeeping. The beginner should be told that bees are not like live stock, they cannot be kept on every farm and everybody succeed. Seventy-five to one hundred and fifty colonies of bees will gather all the nectar in a radius of two miles from the bee-yard. I do not think that apiaries should be any closer together than four miles. It might be possible to succeed if they were as close as three miles, and I would say that they should not be any closer together than three miles. A beginner has a poor chance to succeed if he is located within a half mile of an experienced beekeeper. There is a sort of unwritten law among beekeepers that they will not come closer to one another than three miles; that unwritten law should be observed. A great deal of trouble has been caused because people do not realize that bees will not do well when they are crowded. If you have the ambition to be a beekeeper in a large way you should look over the locality and see whether you have room to develop without going too far afield. If you can locate one or two apiaries within a reasonable distance then you should select that locality. Our friend Mr. Bainard took away a little of my thought as to the situation of the bee-yard, and I agree with him. I would try to have the yard so situated that it would be sheltered from the wind from the north and west and also from the east if possible. Get them in a little hollow at the south side of a wood, if that is not possible then you will have to make an artificial shelter, that is especially the case if you intend to winter the bees outside.

Another matter that should be considered is disease. If you put down a nice clean apiary in a locality where there is disease, you will have that to fight all the time you are there, and it will take up half of your time. Locate your apiary away from the road and not too near your neighbors. It is not necessary to keep bees just where you live, you can keep them a quarter of a mile away. It is far better to have them situated a little distance away than to be continually having trouble with your neighbors. Some people are very nervous about bees. I do not like cross dogs, and I suppose that is the way some people look at our bees.

Bees need water nearly every day they fly, and they should be able to have easy access to water. They should not have to fly over hills or in any windy cold place to get water. They should not have to go to water troughs or any place where they would be a nuisance.

The things that I have mentioned are not always possible, but they are desirable.

MR. ROOT: I do not know whether you can imagine an apiary thirty miles long. But I have just such a situation along a railway track and a road. This

road is from Toledo to Cleveland. I put the colonies about a half mile apart, and with a Ford you can run along the road and examine the hives which are located in among the sweet clover that grows abundantly on the right-of-way of the railway. I put these colonies there and took the chance of somebody taking them up, but nobody discovered them, and I had the satisfaction of having three or four of them give me a good surplus of honey. Next year I am going to put down a colony in a sheltered spot where it will not be discovered, and I will put colonies all along, a half mile apart. I have observed that where a colony has unlimited range and no other bees in the neighborhood it will give much better results. In our part of the country we do not have such locations as you have here, and we cannot keep more than 25 colonies together. I propose to put a colony down alongside of a macadamized road. The macadam will furnish the necessary lime, and the sweet clover will grow alongside of this road because the autos in passing up and down scatter the seeds from one end of the road to the other. There is sweet clover along this road for a distance of thirty miles.

MR. BYER: I think we should try and keep the bees as far as we can from people who might be bothered by them. I want to get the bees away so that no one will look at them at all. I do not want anybody caging queens or marking hives. I want to attend to all that work myself. One year I hired a man who was supposed to know a little about bees, and I gave him a yard to look after and it was the most demoralized yard I had. So far as I am concerned I like to see young beekeepers start up and make a success of the business, but it is not fair to start a large yard within three-quarters of a mile of another yard. Four years ago I selected a location eighty miles from home. I first went around to find if there was any other beekeeper in the neighborhood, and I found one who had fifteen colonies, and he said "go ahead," and we did so and had a pretty good crop. Then another man who saw that we were successful came to the conclusion that he could make more money out of bees than running the farm, and he rented a farm about a mile from us, and in 1916 he actually had 400 colonies, and we had 300, that made 700 colonies in one location. Last year was a poor year in that location and we moved some of our bees out. I do not think that man got much honey last year.

A MEMBER: I kept my bees in the woods, but some men who were out hunting got robbing the hives, and I had to move the bees near some person that I tried to enthuse.

THE CHAIRMAN: I agree with Mr. Sibbald and Mr. Byer. I do not get too near the buildings or too near the house. I had the pleasure of moving a yard this spring, and we never had any trouble before. But this year one of the neighbors read in a paper that a child had been stung to death by bees, and I got notice the next day to move out.

MR. DUNN: For the past thirty years we have had a nice apiary right at home. We saw that our neighbors got a pail of honey, and we had no complaints. Then we bought a lot with a nice slope to it behind us, and Mr. Armstrong said it was an ideal location. We put a lattice fence around it, eight feet high. We have some new neighbors, and they went among the other neighbors and asked to have the bees removed, and we picked them right up and took them out in the country. I would not advise anyone to start in the bee business in town.

MR. MEYERS: When I secured my present location I did not know just where to locate my apiary. There was one place that was shaded with evergreens to the north and the west, but right over the eight-foot fence was our neighbor's driveway and his house. I placed my yard there, and boarded the

fence right up as high as the limbs of the trees, so that the bees would have to fly over the trees, and I never had a word of complaint. An amusing thing happened last spring. This man being a farmer, his horses were in all winter and they were feeling pretty good. His daughter was hitching one of them up one day and the horse would not stand but was capering about, and she yelled to her father, "Come here to the horse, the bees are at him." There was not a bee flying. But it just goes to show that some people are afraid of bees.

MR. WEIR: One of the great difficulties that we have in combating disease is that the buildings and general arrangements of out-apiaries are deficient. The home apiary may be in a proper condition to work in so that diseased colonies can be looked after, the out-apiaries have not any accommodation for combating disease. This is one of the things that is holding back the industry in some locations.

MR. ROOT: One thing that has not been mentioned is the location of the apiary near a cultivated field. You should try and keep them away from a cultivated field because the bees are apt to bother the horses when they are being worked in the field. We got notice to move one apiary that was located near a cultivated field, and I told the man to load them on the truck and move them. This man put a couple of hives on the old location to catch the bees that came back. When he told me what he had done, I rushed down there and I found the hives that he had left crowded with bees right to the top; they were piled up. When I got there they met me more than half way, and I did not have a smoker or a veil, I took some waste and blew on the bees and then I moved them. I believe we had fifty colonies of bees in three hives. This neighbor was the maddest man I ever saw. He said, "I thought you were going to move the bees." I said to him, "I do not blame you for being mad about it, I would be mad too." The bees came back, and when he went by they met him and everybody else that came along. I make a point now to keep my bees from where horses go by. When a horse is stung the man gets mad, and there is trouble.

MR. COUSE: I have kept bees in the village right from the time I first started. It is best to have the apiary with a wall around it 10 or 12 feet high and then there will be little danger. We have a seed business, a grain business, and a honey business. Our bees are immediately behind our seed house. We sometimes have seventeen horses tied there at one time, but so long as we keep them out of the way of the flying bees there is no trouble. We will not let the farmers tie their horses where they are apt to get stung, and we never have any trouble. In our case the bees fly towards our house, and occasionally one of our children gets stung; but we don't care for that because we expect it. One neighbor is quite near the apiary, and he said to me last summer, "I haven't seen a bee of yours all summer." I knew a beginner who put down an apiary within a half mile of another. He did not know that the bees would come and steal his honey out of the honey house if not bee tight: but they did and he lost all his honey. I think the apiaries should be kept three or four miles apart. I saw an article where a bee-man could rent land for five cents per acre in that locality. I think that would be an ideal condition.

RESOLUTIONS.

We your Standing Committee on resolutions beg leave to make the following report:

1. We note with sadness the death of F. L. Moore, of Addison, Ont., who for many years was prominent in beekeeping circles. We, therefore, recommend that the sympathy and condolence of this Association be tendered to the family thus bereaved and that a communication so indicating be sent to the home of Mrs. O. L. Moore, Addison.

2. Whereas certain cases of criminal selling and disposing of material from infected apiaries has, to our knowledge occurred in this Province contrary to clause five of the Foul Brood Act, and whereas the administration and penalty provided for in said Act has been made null and void by the presence of the word "knowingly" in Clause 5 of said Act: Be it resolved and recommended by this Association that said Clause be amended by the removal of the word "knowingly" making the clause to read as follows:

"Any owner or possessor of diseased colonies of bees or of any infected appliances for beekeeping, who sells or barter or gives away such diseased colonies or infected appliances shall incur a penalty of not less than \$50 or more than \$100, or may be imprisoned for any term not exceeding two months."

3. We note with regret that Mr. Morley Pettit has severed his connection as Secretary-Treasurer of this Association, which post he occupied with much efficiency for many years, during which time he led the way to many reforms which we believe have left an impression for good on the beekeeping industry. We, therefore, recommend that in accepting his resignation, the best wishes of this Association be extended Mr. Pettit, together with a copy of this clause of this report.

4. We note that notwithstanding the snow blockade and other extreme weather conditions, and other depressing influences, the attendance has been very good at all sessions of this convention. We would, therefore, recommend the December dates for the next annual meeting of this Association.

5. We note that the presence of American visitors has contributed in a marked degree to the interest of this Convention, this has been true from both an intellectual and a social viewpoint. We would, therefore, recommend that the best thanks of this Association be tendered to them and each of them, and that an invitation be extended to them to visit us on some future occasion. All of which is respectfully submitted. M. B. HOLMES, H. G. SIBBALD, J. L. BYER.

Moved by Mr. HOLMES, seconded by Mr. SIBBALD, that the above resolution be accepted and approved of. Carried.

Moved by Mr. WEBSTER and seconded by Mr. BAINARD: "Resolved that this Association, in a desire to co-operate with the Department of Agriculture in regard to the appointment vacant at the Ontario Agricultural College, appoint a committee to wait on President Creelman and present the views and desires of the Ontario Beekeepers' Association." Carried.

MYSTERIOUS LOSSES OF ADULT BEES.

JAMES ARMSTRONG, SELKIRK.

This is a matter that is affecting the beekeeping in Ontario, as far as I have been able to learn. I found less or more of it in all parts of the Province. I did not know exactly what to do about the difficulty at first, but finally I decided to send out a letter to beekeepers, and I sent out twelve or fourteen letters. I received answers from quite a few beekeepers.

The following is a copy of the letter I sent to beekeepers from Essex and Kent Counties down as far as Ottawa, thus taking in the whole of the Province of Ontario where beekeeping is practised to any great extent:

SELKIRK, ONT., November 1, 1917.

DEAR FRIEND.—I am writing you to see if you had any trouble with your bees dying during this season, crawling out of the hive on the ground and trying to fly. If you have I wish you would give me a detailed account of how they acted and where your yard is situated—on high dry ground or low moist land? Is there a windbreak of any kind around the yard? What time did the trouble commence? How long did it last? What kind of stores did they have? Was there any honey coming in? What kind of bees do you keep? Did you have any trouble like this any other season? Were your neighbors' bees affected in this way? What do you think is the trouble?

Let me hear from you as soon as possible.

Yours very truly,

JAMES ARMSTRONG.

P.S.—I want this information to use at the Ontario Beekeepers' Convention.

I received the following replies from different beekeepers:

LAMBETH, November 26, 1917.

DEAR SIR.—In reply to your letter of November 21st, would say that I had not noticed any trouble this year, but I had trouble with paralysis a year ago and other seasons. I had it in two yards of Italians, commencing with Alsike Clover bloom. Do you suppose there is anything in this? Alsike has been known to poison horses. One yard of Carniolans and Italians crossed have not been affected. They are in the south yard on low ground; you will remember the place where I said: "This is a queer place to have bees in the woods." The adult bees when affected were black and shiny looking and swollen. They crawled up the grass and tried to fly; when exhausted they would cluster in small bunches or fall into any small hole in the ground. The case in one yard was a colony shaded by trees, honey house and hedge. It spread to some hives close by. Last year a colony in another yard had it bad and stored no surplus. Other colonies near it had it slightly. I have done nothing to them and saw no signs this year. The brood is not affected. I do not remember of any trouble after clover flow.

Yours truly,

(Signed) E. T. BAINARD.

GUELPH, December 3, 1917.

DEAR MR. ARMSTRONG.—I received your letter asking about my bees.

I only saw my bees crawling, as described, in one of my yards, and only on one day. The next time I went there they were evidently all right and I could not see any trace of the bees referred to, so could not say whether they had died or not. The condition may have been from some other cause. It was a dull day and cool and I thought perhaps they were heavily loaded.

I have not had much trouble of this sort and do not know of any of my neighbors having it.

Yours truly,

(Signed) F. W. KROUSE.

PARIS, November 30, 1917.

DEAR MR. ARMSTRONG.—In reply to your letter of enquiry would say, "Yes, we have had trouble, with the bees dying by the thousands." They just crawl out of the hive and gather in clusters; they are unable to fly. Our yards are all good and dry, and we have a wind break around two of them. Their feed was mostly sugar syrup. The trouble

always appears when honey is coming in freely. I had the same about ten years ago. The late Mr. McEvoy was here and saw them. He said they were getting some rank honey dew that made them sick. I do not think that can have been the cause, as ours have had no honey dew to any extent for the last three or four seasons. It seems so strange why it should happen just when the honey flow starts and hives strong in bees. Some bee-keepers were thinking it might be caused by their drinking stagnant water, but at our St. George yard we have nothing but the best spring water, so it cannot be that. I do not know what is the cause.

Yours truly,

(Signed) ALEX. TAYLOR.

CHELTEMHAM, ONT., November 27, 1917.

DEAR SIR,—Your letter to hand *re* bees dying this summer.

Yes, I had what I think a bad dose of the trouble. My bees crawled out in tens of thousands and died. My apiary is on quite low ground and during the wet weather was quite damp. I noticed that the bees from the hives on the lowest ground were most affected, and those which I had set on the ground without any stand under them were much worse than those on stands six to eight inches above the ground. The trouble commenced in clover bloom when rainy weather was on. Have no wind break. Keep Italian bees of the best type. Have had no trouble like this before.

What do I think is the trouble? One of two things. Either poison from the clover being too much saturated with water so that the Alsike poison got into the honey nectar, or else the humid moisture of the air affected the bees somewhere.

I sent samples of the dead bees to the United States and no trace of disease could be found by the professors who profess to know.

My neighbor's on higher ground were not so badly affected as mine were. Hence I think that the moisture and dampness was the cause of the trouble.

(Signed) A. F. HAINES.

MARSHVILLE, ONT., November 24, 1917.

DEAR SIR,—In reply to yours of the 21st inst., would say that my bees diminished about 75 per cent. between the fall of 1916 and 1917. Most of the loss occurred between the middle of April and the middle of July. In the fall of 1916 the bees were given from six to ten frames of solid honey and from ten to thirty pounds of syrup. They were strong and had from forty to sixty pounds of stores. I think the trouble commenced about the time the bees had eaten up the syrup and started on the honey. In many of the hives the bees entirely disappeared; also did the packages which I received from the South. The trouble was always worse after rains. We had our last rain about July 17th. The trouble was very bad after that; then dry weather came and the bees were better for a couple of months, when we had more rain and they were affected again. The bees affected would get from four to six feet from the hives and try to fly, and after a few attempts they would get discouraged and crawl into little clusters and remain motionless. Their intestines were filled with a thin, brownish, foul smelling substance, which they were unable to expel. The abdomens of the affected bees were badly distended.

My yard is surrounded with an eight foot board fence, and when warm weather comes I remove every other board, leaving six inch openings. The land is high, yet was very wet this year. The dry weather came about the time we generally get the best flow, but we got little clover honey, and it was dark in color.

I have all pure Italians, and have gone to a lot of trouble and expense to keep them pure so as to be prepared for E.F.B., but this year with the colonies weak from dwindling, E.F.B. got a wide swat and further reduced their strength. I have seen no dwindling before this year.

My neighbor's bees were also affected, but I cannot say that the bees acted the same as mine. I think there was a difference in some yards. I am inclined to think with a fairly dry season next year the bees may be all right, but if it is wet we will no doubt lose all. My colonies that gave me the most honey last year were the first ones to succumb.

(Signed) JOS. E. PALMER.

BRANTFORD, December 4th, 1917.

DEAR MR. ARMSTRONG,—The disease which has appeared among the bees of this Province during the last two years is in my estimation the most subtle of them all, inasmuch as the evidence of its presence is not found in the combs, and to the possessor, seller or purchaser its presence may and likely will not be revealed during nine months or more of the year.

This disease was first noticed in one of our apiaries during the wet spring and early summer of 1916. It made its appearance in an apiary well protected and shaded by a

high board fence and shaded by large apple trees. In the many operations necessary in our work and movements with truck and auto, in which we were much hindered by wet clay roads, I did not get the desired time to have my mind dwell much upon this point, and the disease disappeared as soon as dry, hot and sunshiny weather came, and an excellent honey crop was secured. At no time during the season of 1916 was a large amount of pollen conspicuous.

This year (1917), as we all know, we had another wet spring and early summer, but unlike the previous year, it was interspersed with cold weather, and I do not think the best colony in any of our ten apiaries gathered five pounds of nectar and pollen from the time spring opened until June 8th. More of the disease showed up, and where most of it was seen this year, as also during 1916, was where the apiaries were most protected by shade through fence and orchard. In one apiary so serious was the ravage that I pointed out to my two sons that in a few colonies nearly all the old bees had perished, leaving the colonies so depopulated that it was out of the question to secure a honey crop from them.

Towards the last of the wet weather I began to suspect that moisture was a favorable condition for the development of the disease. This had been the conspicuous condition each year when it manifested itself, and shade where it was found also tended to indicate it; I therefore opened up the fences to allow a freer circulation of air under the trees. In a week's time the disease disappeared. It may have been the result of the treatment given—I do not know.

It seems to me incorrect that the disease is the result of excess of pollen or pollen eating; if it is, why did it not show itself long years ago?

Fifteen years ago some of our bees during the buckwheat flow showed signs of bee paralysis. They climbed on chips and blocks in the vicinity of the entrance, appeared almost helpless, and trembled slightly. This disease is quite different. With this the bees appear to rush from the hive through the grass and weeds, the four wings are separated and extended, and they are finally found dead in the depressions in the ground. I have no doubt we are paying the price for rapid transportation facilities, and in beekeeping as in fruit culture many enemies have been brought in through this transportation. This disease, as Bee Paralysis and European Foul Brood, has been imported, and we can only hope—or shall I say wish—that with normal weather the atmosphere will be too dry to work much injury in Ontario. Time will tell.

Yours very truly,

R. F. HOLTERMANN.

These letters all go to show that damp weather and lots of rain is the cause of this disease showing up. I have frequently received letters from beekeepers asking me to come and see their bees that they were crawling all over the yard. When I have gone to their yards, a couple of weeks later, the trouble has ceased. Nearly every beekeeper knows that there is quite a gap between the spring bloom and the clover season, and during this gap the bees are doing little or nothing, and the hives are pretty well filled up with bees that have been carried over from the year before. I have never yet seen a year when there have not been less or more bees crawling over a yard at that time of the year. In a week or ten days this all disappears. I have never seen this trouble in a yard when we have nice warm weather, and the honey coming in freely. The worst case I saw was in the yard of Mr. Jas. E. Palmer, of Welland County. His yard was on high ground. There is an orchard on one side and some of the big trees overhang the yard. There is an eight-foot board fence around the yard. The hives are very close together. When I was at the yard I required rubber boots to walk in it, it was so soft with the water lying on the ground. Mr. Palmer is a careful man and he has all Italian bees. He takes great interest in the work, but I think he opened his hives oftener than he should have at that season of the year. Mr. Palmer said that the trouble commenced in April. He had bought a number of pound packages of bees, and they nearly all went in the same way. He said he could find bees of all ages in the hives. At the commencement of the honey flow you will find that broken wings are the cause of the trouble, because then you have nearly all old bees. Another beekeeper not very far from Mr. Palmer who had a small yard had none of this trouble. I

was at both yards the same day. Up the same road I saw another yard where they had the same trouble as in Mr. Palmer's yard. I went a mile and a half farther up the road and there they had no trouble of this kind.

MR. SIBBALD: What about the stores in these hives where they had the trouble?

A.—They all had stores of sugar syrup. Mr. Palmer had three hives and one of the three had no trouble and there was trouble in the hives on each side of it.

Q.—Were these hives equal distance from the ground, or was one a little higher than the others?

A.—One beekeeper wrote me that since he raised his hives from the ground he did not have the trouble. He raised them two feet from the ground.

Q.—Did you notice the kind of queen Mr. Palmer had in his hives?

A.—He got some fifteen or twenty packages of bees from the south, and they were all supposed to be young queens. They were just the same as the other bees as soon as he put them on the comb.

Q.—Had the bees died and left the combs uncovered?

A.—I find we get into trouble very often just along that line. Where you have a weak colony of bees you should not open up the whole entrance all across, especially if it is wet cold weather.

MR. SIBBALD: I find quite a difference in the condition of honey in colonies sitting side by side. One colony will make a superior honey to the other. One honey is well ripened, and the other will get sour, and become rather questionable food for the bees in a spring like we had this year.

MR. ARMSTRONG: That is especially the case if they are confined to the hive for a week or ten days.

Q.—Which bees developed the disease first those that came from the south or the others?

A.—Just about the same time.

MR. SLADEN: Anyone who has experience in shipping bees will know that they will die very heavily in transit in the spring, and they will come through all right in the fall.

MR. HABERER: I had ten two-pound packages of bees and you could hardly notice the disease in them, but the rest of the yard had it.

MR. ARMSTRONG: I did not notice so much of the disease in the east.

MR. DUNN: Mr. Vanderberg wrote from St. Catharines that his bees were just dwindling away.

A MEMBER: From most of the letters you have read it would appear that this trouble occurred when alsike clover was in bloom, and the stores would be good about that time?

MR. ARMSTRONG: Yes, the stores were good. Speaking about the bees dying in the neighborhood of St. Catharines—that is the smelter business. That has been thrashed out by me and others for some time. We put in two weeks on it last fall at St. Catharines, and it is still going on. I am just as sure as I am standing here that there is no disease among the bees in that section.

Q.—Can you detect any difference between the bees that die because of the smelter and from this disease?

A.—Yes, with the smelter bees when they come out of the hive in the morning as if they were going to the field, some of them will go straight, but they don't go very long till they drop. They are not swollen. You will find some of them one hundred and two hundred yards from the hive. If you start from the smelter you will find more bees near the smelter than at the hive. The stockmen are also suffering. One man lost eighteen head of Holstein cattle, and the veterinaries swore it was the arsenic that killed them. The fruit men are also suffering.

MR. SIBBALD: Mr. Holtermann opened up a hive in the spring and found a large number of dead bees. Did that apply to any of the others?

A.—No, I do not think so.

MR. SIBBALD: Are these men who have the trouble men who use small hives or large hives?

MR. ARMSTRONG: I found the same condition in hives of all sizes. In one yard the whole entrance was opened, a beekeeper should know better than that.

MR. SIBBALD: After I unpack my bees I never contract the entrance. My bees had the full entrance this season. I cannot complain much of the disease, there were a few in one yard, but not many.

THE CHAIRMAN: I use the big hive. The only place where I saw it in my yard was where there was shade. I never saw the disease where the sun shone on the hive. When I did see the disease it was cold wet weather, but when the weather got warm it all disappeared.

MR. SLADEN: Cold damp weather is the condition under which the Isle of Wright disease starts in England. That disease has caused trouble in Washington State and in the Province of British Columbia.

Q.—Isn't there a certain amount of paralysis?

MR. ARMSTRONG: No, I didn't notice anything of that kind.

MR. SLADEN: The Isle of Wright disease has been traced in England to a parasite, which may be present without causing any symptoms. It may be just an innocent occupant of the alimentary canal, but under favorable weather conditions it may invade the walls of the gut. It looks as if the same disease is affecting the bees in this Province, because we know that the *Nosema Apis* is abundant in this country.

Q.—Is the disease noticed very much when the flow of honey is coming well?

MR. ARMSTRONG: No.

MR. SLADEN: I would suggest that the beekeeper open the abdomen of the bee and see if it is particularly white. If so it indicates *Nosema Apis*.

WILLIAM COUSE: I do not know what this disease is, and I do not think the other fellow knows what it is. It is strange to me that we did not find out something about it long ago. My bees never had it until this summer. I went out to my yard and found practically the whole yard covered with bees one morning. It had started all over the yard in one day. I took some of the bees into the house and examined them under a powerful glass, and their wings were apparently perfect and they were bees of all ages. I called up Mr. Pettit and asked him to come down. I was not alone, because I called up all the beekeepers in the district, and they were all in the same predicament. We are only guessing what the trouble was, but we came to the conclusion that we had not cut our grass short enough and that our hives were not a sufficient distance from the ground. I think it was a sort of rheumatism. Another reason that might account for part of the trouble was green stores. The weather was so cold that the honey did not mature. They say it disappears in June, but what about the other fellow where it does not disappear in June?

MR. HABERER: It was bad with me in July.

MR. NEWTON: Mr. Ellis has lost all his bees.

MR. COUSE: Mr. Armstrong thinks the smelter is the cause of that, but I will tell him he does not know. He and I do not agree. He says these bees were distended. I opened up some of them and they were perfectly empty. Mr. Palmer's bees were distended. What is the reason for that? I do not know. Mr. Bowen was formerly one of the best beekeepers in the Province. In September he had

forty hives of bees, and there was only one good hive in the yard, and that hive was gathering extensively of aster honey. I do not know European Foul Brood. Mr. Bowen had European Foul Brood, and he thinks he has American Foul Brood. He has this other disease, and if Mr. Armstrong is correct he has the smelter trouble also. Mr. Will Ellis is in the same position. All these things are occurring where the bees are gathering stores. So you see we are all mixed up. I went to Mr. Larkin's farm, but when we got there it was too late to look into the hives. We got a smoker and looked into the hives, and we found that he had quite a bit of honey on top of his bees. The hives were up from the ground. Mr. Armstrong says that would help them. From my place to Mr. Sibbald's it is just 20 miles, and he did not have the disease, but he is much higher than I am, and I believe the air is much dryer in his locality. This is my first experience with the disease. I went to the New York State Convention, and I had a conversation with Mr. Stewart one of the State Inspectors. He told me that he had been dealing with this disease for fifteen years, he said they had it in the fall and in the clover bloom. It is like everything else, nothing new. Mr. Austin, of Fonthill, had bees from the south, and they were in good condition. I went there in the fall and he had very few. They claim it was caused by the smelter fumes. The brood was in perfect condition and the stores were white honey. There is something the matter more than we know, and it is serious. This trouble has occurred in New York State all the way down to the Adirondac Mountains. Three beekeepers in Fonthill have been wiped out, Mr. Ellis has been wiped out, and the matter is serious. This year we have had a tremendous yield of clover seed and that may have had something to do with it. The average crop of seed is four bushels, and this year they have had seven and eight bushels to the acre. We do not know that there is poison in alsike clover seed; but we do know that the mice will not touch it, although they will eat timothy seed. I think we should ask the Department of Agriculture to look into this matter for us.

MR. SLADEN: Do the bees gather water between the dandelion and clover flow?

MR. COUSE: They are always gathering water.

MR. SLADEN: If the water is stagnant, that is the way the *Nosema Apis* is spread in the Old Country.

MR. COUSE: Mr. Bowen had one of the best apiaries in Canada, and he has been wiped out. He is five miles from the smelter.

A MEMBER: One thing we have all noticed and that is that the disease comes in the damp weather. There is a greenhouse opposite our place where they grow thousands of roses, and they could not mature one perfect rose at that time. I said "What is the matter with the roses?" and they said, "It is mildew." That led me to wonder if the mildew affected the nectar in the plants to such an extent as to cause this disease.

W. H. CHRYSLER: What are we to do about this matter? We have disease of the brood, but this appears to be a disease of the bees. It is a disease of the adult bee. It might be contended that it is a disease that comes from the larvæ stage by reason of the bee not being properly fed, but I hardly agree with that because the disease disappears with warm weather. It is said that the weather conditions have most to do with it. How do we account for the Italian bees being affected by the disease and the black bees not affected? I have black bees with just one board on the bottom of their hive, resting on the ground and rotting out among the grass. I had half a dozen colonies of black bees, and when I tell you that these black bees rolled up 200 lbs. of honey per colony and the Italian bees did not have more than

150 lbs. per colony, you will understand that it was the Italian bees that had the trouble. It seems to be nothing more than an affection of the wings. I have seen an Italian bee fifty yards from the hive on a clover blossom and wishing to go to another blossom which was not more than six or eight inches away. The bee made an effort to fly and found it was useless and walked down the stem and up to the other blossom. He worked on that blossom and not noticing any other blossom within reach tried to fly home, but could not fly and remained there probably for all time. I think probably we might use some disinfectant in the colony of bees to get away from the trouble. I think each and every one of us might do something to try and find out the remedy and the Government might also experiment.

MR. EVANS: The main point is: What are we going to do about it? I would suggest certain experiments. If it is thought that it is caused by having the hives too near the ground why not raise some of them up and see what effect that will have? Another beekeeper might take out all the honey and try some sugar syrup and see what effect that would have. My apiary is eight feet higher on the north side than on the south. I had no trouble in the hives on the north side. My apiary is on stone walls terraced from the north, and it may be that some of the bees went down to the lower part and died there, and that is the reason I did not see any at the north end.

DR. BEUGLAS, Hamilton: I am an intensive beekeeper. I have no land to put my bees on. I had fifty-four colonies of bees. Eight of them were in the attic and the rest of them in an old barn loft. I took about a ton of honey out of that loft and nobody around there knew I had any bees. Along about August I swept up a market basket full of bees in the attic, and I took them out of the attic in September and I had a snow shovel full of dead bees in the barn. There is a window in the barn that the bees go out through and there were two colonies near the window that I thought were fighting. Of course bees coming in late at night would drop near the window, and every once in a while I would get a shovel full of bees there. They were on dry shavings all summer and there was no wet grass to bother them at all. I cannot explain the trouble, and I have been fiddling with bees for the last thirty years. They all had good feed. I had very few dead bees last summer. Of the eight colonies in the attic only four gave a surplus of honey.

MR. ROOT: You will find this same disease in Oregon and in the Mississippi Valley, and in the Western part of Ohio. I have seen it in New York State. It seems to come in wet, cold seasons. When I was preparing an article on diseases I read over nine years of the *British Bee Journal*, and I was surprised to see how that Isle of Wright disease corresponded with this disease. It is something that we did not seem to know about and now it is getting common, just the same as appendicitis. I think this trouble is one of the things that we must investigate, because it is all over the country.

ADDRESS OF PRESIDENT-ELECT.

JAMES ARMSTRONG, SELKIRK.

Fifteen years ago I was offered this same position and would not accept it, and said that I never would, but it seems impossible to stick to that now. I have to thank you for electing me to this position. I do not know how I will get along in it, and if I make a number of blunders you will know that it is not because I do not try to do the right thing. As long as I have Mr. Hodgetts on my right hand I will feel safe, and will know that he will help me out in every way. I never felt

that I could do justice to the Association by taking the chair, and that is the way I feel at the present time. But I ask you all to help me in every way and we will try and do our best.

THE CHAIRMAN: We will now hear from Mr. Douglas of the McDonald Manufacturing Company as to the position of the tin can business for the coming season.

MR. JAMES DOUGLAS: We have received a number of inquiries as to the outlook for tin containers for the coming season. We feel sure that we will be able to supply you with all the pails you will require. We suggest that you place your orders early, but do not ask us to fill them all on the same day. We have no definite information as to what the price will be. We expect to fix the prices in January, and they will not be very much higher than last year.

MR. EVANS: After the first of January every container will have to have the weight stamped on it.

MR. DOUGLAS: We generally get advanced information as to these matters, but we have not as yet received any information on that subject.

MR. HODGETTS: It is in connection with the Food Controller's Office and relates only to canned foods. I would suggest that the directors look into the question and report.

WINTERING BEES.

J. L. BYER, MARKHAM.

If you had asked me to talk on this subject fifteen or sixteen years ago I could have been more positive about a number of things than I am now. I wish I could get rid of some of the statements I have made in the bee journals, because I have since found out that I am wrong. We always find something that we are not sure of. I can only speak on the subject of outdoor wintering, because I have never wintered inside. There are a few essential facts that we have proved out in practice, but we too often forget the man in the business and the location of the yard and a host of other things. We have a man in the audience who has been in the habit of digging a trench and puts the hives in the trench and throws the dirt over them and leaves them there for the winter, and he is very successful with his bees. If I did that in Markham Township with the heavy clay soil that we have up there there would be a different story to tell. Therefore, I say that we must consider the locality in all cases. What will do in one locality will not do at all in another.

The first thing that I would say was essential in the wintering of bees is good stores. My good friend Mr. Newton told you yesterday that he thought young bees were the first consideration. Someone said, "You cannot winter bees unless you have a good queen." I differ from that, because I have wintered queenless colonies. If you have a good queen and young bees they will not winter unless you have abundance of stores. Mr. Sibbald has always had good success in wintering his bees, and one fall I hitched up and drove forty-five miles to his place to see how he did it. I had a pleasant two days with him, and after I returned home I found that all that I had learned was that he was one of the heaviest feeders we had in Ontario. He was careful to see that he had good young queens, but the great outstanding thing was that he saw that each colony had a good supply of stores, and that these stores were in such a position that the bees could get at them. I remember some years ago writing an article claiming that the eight-frame Langstroth hive was a very poor hive and to-day I say that the eight-frame Langstroth if given

proper attention is one of the surest hives in which to winter bees. It is simply a question of getting the hive in the proper condition. I would not think you would have much success in our locality if the bees were not put up properly. I have seen the bees starve to death and honey still left in the hive, but they could not get at it.

The next thing I would put in order of importance would be a good young queen, and she should be put in during the clover or buckwheat honey flow. I find that it is a good plan to do a lot of re-queening in August. Last year was a bad year to do the re-queening in August from the fact that the buckwheat flow was bad, and the bees were very hard to handle.

The next important matter is a well protected apiary. I would prefer to have the bees take their chances in a well protected apiary without any extra packing rather than have them in well packed hives and out in the open where they were not protected from the wind and the storm. My idea of a well protected apiary might not agree with some of the things I have heard at this convention. Evergreens have been mentioned, I think scrub trees are much better. Scrub second growth timber makes the best protection. We placed an apiary this fall in a ten-acre plot of second growth timber, and I think it is an ideal spot, because they are protected from the winds in every direction. I am trying to get my yards as far away from human habitation as possible, and that leads me to put them in the woods. I do not care what kind of a winter case you use, you will get good results if you give abundance of stores, and have a good young queen. I am convinced that it does not do any harm to have the bees in good condition by the 20th of October, and after that leave them alone. Some good beekeepers are wintering bees and using a sealed cover, I prefer a quilt over the frame. Then I want over that, packing in the form of something good and dry. Our friend Mr. Dunn will have granulated cork, and I think it will do just as good as anything else, but no better. We take whatever we can get handy. We have used sawdust, and this fall we ran short of packing and we got planer shavings from the mill, and I prefer the planer shavings to anything else I have had. That is for the top, but I think good coarse sawdust is all right. I do not think there is any better packing than wheat chaff. The only fault I have to find with it is that it attracts mice. If I use leaves I prefer to have them two or three years old and well pulverized. We have over three hundred colonies in our north yards and we do not expect to see them until some time next April, they are often covered with snow. I like to have abundance of air space between the packing and the roof proper of the packing case. I have only been up to the northern yard once in three winters, and at that time it was very much like the weather we are having now, below zero, but I did not find any moisture on the hives.

There is one thing sure with regard to wintering bees, and that is that the tighter you seal up the top the more generous entrance you must leave. For our bees wintering up north we give them an entrance six inches long by a half inch deep; the bridge inside is a full inch deep. The only losses we have had up there was three or four colonies through getting the entrance clogged up with snow. I do not think that an inch or an inch and a half would be too much so as to provide against accidents in the way of the bees smothering.

Most of you know just as much about wintering bees as I do, and I must confess that I cannot give you anything positive on the matter. We may all have our pet ideas as to how to winter bees, but as I said before, the man handling the bees and the locality also have to be considered.

The Convention then adjourned.

ANNUAL REPORTS
OF THE
DAIRYMEN'S ASSOCIATIONS
OF THE
PROVINCE OF ONTARIO

1917

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO :
Printed by A. T. WILGRESS, Printer to the King's Most Excellent Majesty
1918

Printed by
WILLIAM BRIGGS,
Corner Queen & John Sts.,
Toronto.

To His Honour SIR JOHN STRATHEARNE HENDRIE, C.V.O., a Lieutenant-Colonel
in the Militia of Canada, etc., etc., etc.

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned begs to present for the consideration of Your Honour the
Report of the Dairymen's Association of Eastern Ontario for 1917, and the Report
of the Dairymen's Association of Western Ontario for 1917.

Respectfully submitted,

W. H. HEARST,

Minister of Agriculture.

Toronto, 1918.

CONTENTS

	PAGE
LIST OF OFFICERS	5, 6
FINANCIAL STATEMENTS	5, 6
DAIRYMEN'S ASSOCIATION OF EASTERN ONTARIO	7
President's Address: J. N. STONE	7
Committees	8
Judges' Reports: GEO. H. BARR	9
Prize Winners, 1918: Butter and Cheese	10
Production: J. H. GRISDALE	11
The Price of Cheese: J. A. CAMPBELL	16
Dairy Herd Record Work: GEO. H. BAER	18
Addresses of Welcome: MAYOR J. J. HANDS and DR. A. E. HANNA, M.P.	20
Food Control in Canada: DR. J. W. ROBERTSON	20
Address: GEO. A. PUTNAM	23
Report of Dairy Instructor and Sanitary Inspector: G. G. PUBLOW	25
Discussion following Address of J. H. SCOTT	31
Hints on Buttermaking: L. A. ZUFELT	33
Report of Resolutions Committee	35
The Work of the Cheese Commission	36
The Cheese Commission: JAMES ALEXANDER	43
Dairy Farmers and the War: A. A. AYER	51
Address: PROF. H. H. DEAN	55
Secretary's Report, 1917: T. A. THOMPSON	63
Address: F. W. HALL, M.L.A.	64
The Dairy Farmer, Cheesemaker and Buttermaker as Food Manufacturers: PROF. H. H. DEAN	65
Address: W. J. BELL	67
DAIRYMEN'S ASSOCIATION OF WESTERN ONTARIO	70
President's Address: R. W. STRATTON	70
Director's Report, 1917	71
Report of Dairy Herd Competition, 1917	73
What the Farm Business Survey Shows: A. LEITCH	74
Address: DR. C. A. ZAVITZ	80
Modern Cow Testing: C. F. WHITLEY	84
Addresses of Welcome: MAYOR MONTEITH, CHAS. FARQUHARSON	86
Address: SIR WILLIAM HEARST	86
Dairy Awards, Winter Dairy Exhibition, Stratford, 1918	99
Butter Grading, 1917: JNO. H. SCOTT	102
Report of Chief Dairy Instructor and Sanitary Inspector for Western Ontario, 1917: FRANK HERNS	105
Some Further Notes on the Use of Pepsin in the Manufacture of Cheese: GEO. H. BARR	112
Some Reasons Why the Price of Dairy Products has Advanced: PROF. H. H. DEAN	114
The War and the Dairying Industry: J. A. RUDDICK	117
The Provincial Grading Service from the Standpoint of the Creamery Owner: WM. WADDELL	120
The Provincial Butter Grading Service from the Standpoint of the Butter Dealer: I. W. STEINHOFF	122
Resolution	124
Butter Grading: L. A. GIBSON	124
Report of Committee on Resolutions, 1918	125
Address: MR. BOUSKA	126
REPORT OF THE DAIRY BRANCH AT O.A.C., GUELPH	127
REPORT OF THE EASTERN DAIRY SCHOOL, KINGSTON	128

DAIRYMEN'S ASSOCIATION OF EASTERN ONTARIO

OFFICERS FOR 1918.

Honorary President—JOHN R. DARGAVEL, M.L.A., Elgin.
President—R. G. LEGGATT, Newboro, Ont.
First Vice-President—JOS. MCGRATH, Mt. Chesney, Ont.
Second Vice-President—N. FRASER, Vankleek Hill, Ont.
Secretary—T. A. THOMPSON, Almonte, Ont.
Treasurer—JAS. R. ANDERSON, Mountain View, Ont.

Directors.

1. Ontario, Victoria, and Haliburton HY. GLENDENNING, Manila.
2. Peterboro G. A. GILLESPIE, M.L.A., Peterboro.
3. Lanark JOHN STEEL, Almonte.
4. Renfrew D. MUIRHEAD, Renfrew.
5. Carleton E. H. GRAHAM, Carp.
6. Russell W. H. OLMSTEAD, Bearbrook.
7. Prescott N. FRASER, Vankleek Hill.
8. Glengarry A. J. ROBERTSON, Martintown.
9. Stormont WM. BROWN, Dickinson's Landing.
10. Dundas.....GEORGE SMITH, Iroquois.
11. Grenville JAMES SANDERSON, Oxford Station.
12. Leeds R. G. LEGGETT, Newboro.
13. Frontenac JAS. MCGRATH, Mt. Chesney.
14. Lennox and Addington M. N. EMPEY, Napanee.
15. Prince Edward W. A. BENSON, Picton.
16. South Hastings JOHN KERR, Belleville.
17. North Hastings T. H. THOMPSON, M.P., Madoc.
- Northumberland ALEX. HUME, R.R. 3, Campbellford.

G. G. PUBLOW, Chief Dairy Instructor, Kingston.

L. A. ZUFELT, Superintendent, Eastern Dairy School, Kingston.

Auditors—J. J. PAYNE, Brinston, Ont., and MORDEN BIRD, Stirling.

Representative to the Canadian National Exhibition—HENRY GLENDENNING, Manila.

Representatives to Central Canada Exhibition, Ottawa—R. G. LEGGETT and T. A. THOMPSON.

FINANCIAL STATEMENT FOR 1917.

RECEIPTS.

Jan. 4.	Cash on hand from previous year	\$1,420 43
Jan. 20.	For members' fees..	232 00
Feb. 3.	Legislative grant....	2,500 00
Apl. 7.	Receipts from programme advts.....	215 00
	Money received from prosecutions	1,360 00
	Receipts from Dairy Ex.	2,765 39
	Donations for Special prizes	90 00
	Interest at Molson's Bank	41 70
	Total payments.	\$8,624 52

EXPENDITURE.

Napanee pay sheets for Directors	\$355 80
Ottawa pay sheet No. 2, Executive	81 95
Toronto pay sheet No. 3, Executive	140 80
Prosecutors' salary and expenses	863 20
Lecturers' expenses	562 60
Advertising and printing	422 67
Rural Publishing Co., subscribers to <i>Farm and Dairy</i>	168 00
District meeting expenses.....	242 02
Stationery, postage, telephone, express	100 99
Officers' salaries	600 00
Official stenographer	90 00
Expenses re Dairy Exhibit...	3,561 10

Total expenditure \$7,189 13
 Balance on hand Jan. 9, 1918 1,435 39

\$8,624 52

DAIRYMEN'S ASSOCIATION OF WESTERN ONTARIO

OFFICERS FOR 1918.

President—JAMES DONALDSON, Atwood, Ont.
First Vice-President—FRANK BOYES, Dorchester, Ont.
Second Vice-President—W. G. MEDD, R.R. 1, Woodham, Ont.
Third Vice-President—JNO. SCOTT, Woodstock, Ont.
Secretary-Treasurer—FRANK HERNS, London, Ont.

Directors.

T. BALLANTYNE, Stratford. G. E. BOOTH, Ingersoll.
J. N. PAGET, Canboro. G. F. MAHON, Woodstock.
R. MYRICK, Springford. R. W. STRATTON, Guelph.
Auditors—J. A. NELLES, London; J. C. HEGLER, K.C., Ingersoll.

Representatives.

Canadian National Exhibition, Toronto—FRANK HERNS, London; ROBERT JOHNSTON, Woodstock.
Western Fair, London—FRANK HERNS, London; JOHN BRODIE, Mapleton.

FINANCIAL STATEMENT

OF THE DAIRYMEN'S ASSOCIATION OF WESTERN ONTARIO, MADE TO THE DEPARTMENT OF AGRICULTURE FOR THE PROVINCE OF ONTARIO FOR THE YEAR ENDING DECEMBER 31ST, 1917.

RECEIPTS.

Cash on hand from previous year	\$469 84
Members' fees	311 00
Legislative grant	2,000 00
Money received from prosecutions	547 50
Donation for special prize	50 00
Sale of dairy exhibits	2,934 16
Advertising in Convention programme	155 00
Miscellaneous	3 45
Total	\$6,470 95

EXPENDITURE.

Cash paid for prizes, cheese and butter, \$413.00; Canadian Salt Co., \$50.00; Dairy Herd Competition, \$10.00....	\$473 00
Expenses for Convention	114 70
Stenographer's salary, \$459.00; Directors' expenses, \$135.80.	594 80
Postage and stationery, \$226.93; printing, \$262.25; advertising, \$107.65	596 83
Judges' fees and expenses	43 50
Prosecutor's salary, \$192.80; expenses, \$80.95	273 75
Periodicals for members	223 30
Cost of reporting	60 00
Purchase of Dairy exhibits ...	2,933 79
Office expenses, light, cleaning and sundries	224 84
Office rent, \$120.00; office furniture, \$51.45	171 45
Telegrams and telephone, \$97.10; express and cold storage charges, \$36.99	134 09
Half fines paid to factories	273 75
Auditors' fees	15 00
Refund to members	1 00
Legal fee	5 00

Total	\$6,138 80
Balance	332 15
	\$6,470 95

Dairymen's Association of Eastern Ontario

The Forty-first Annual Convention of the Dairymen's Association of Eastern Ontario was held in Perth on Thursday and Friday, January 10th and 11th, 1918. The attendance was the largest and most representative of any during the past five years. The farmers of the Eastern part of the Province attended in large numbers. Great interest was evinced in all subjects that were brought before the Convention. The President, Mr. J. N. Stone, Norham, presided at all the meetings.

PRESIDENT'S ADDRESS.

J. N. STONE, NORHAM.

For the second time in the history of the Dairymen's Association of Eastern Ontario we are privileged to meet in convention in this historic town of Perth, which has the distinction of having produced the largest cheese in the world, and had the same exhibited at the World's Fair, in Chicago. That cheese did much to call the attention of the world to what Canada was doing in the cheese industry.

Seven years ago we met here in convention. Well do I remember the cordial welcome we received from every hand, and I trust our return will result in mutual benefit to the townspeople and dairymen alike.

Since we last met here there have been wonderful changes—changes which have affected all classes of occupations and industries. Some have suffered; some have prospered. The cheese and butter industries have been among the fortunate. Previous to the war prices were slowly advancing. Since the war they have advanced more rapidly, the prices of 1917 having excelled all other years so far as average price is concerned.

The price having been set by the Cheese Commission early in the season has resulted in an unchanged price throughout the season, namely, about 21 $\frac{3}{8}$ cents per lb. at the factory. While we do not feel like asking for a higher price, still we believe the price should have been advanced for the last three months of the season. For this reason the dairymen producing milk for cheese were not receiving anything like the price received by dairymen in other lines. If the cheese dairymen are expected to fill the requirements expected of them then they must be paid a fair price with their neighbors, or a change can only be expected. If the cheese price is correct, then the others are too high. One or the other should be looked after, and that at once, for not a few farmers are considering a change.

Personally, I would advise the cheese dairymen to stay firm to that business. I believe it to be a solid foundation to make good on, and it will stand the test for years equal to any other dairy business. There can be no fear for after the war. The great wastage of cattle in Europe can only result in one way, and that must be in our favour in Canada.

The help problem is the great question that confronts the dairymen to-day. Hired help are avoiding the dairy herd as much as possible. The only resort is the milking machine. During the last summer I visited a few farms where machines

were doing the milking and giving entire satisfaction. I believe the results rest entirely with the operator, and the use of the machine will save a lot of time.

There is one change made since we last met that I would like to call your attention to. That is the use of oleomargarine. Last winter, when the agitation was on, the executive of this Association met at Ottawa to interview the Minister of Agriculture on a set date. However, the Minister was not able to be present, having been unexpectedly called away. We therefore met Sir George E. Foster and stated our views. We were received very kindly, and assured at that time no immediate action would be taken to allow its use. We contended at that time that we were of the opinion that the call was not so much from the consumer as from those financially interested in its manufacture and sale.

Since that time a Food Controller has been appointed, and he has recommended an Order-in-Council allowing, on and after the 1st of November, 1917, the manufacture and sale in Canada of oleomargarine and its importation free of duty. We are advised by the Food Controller that this is a war measure only, and the dairymen's interest will be protected. We believe Mr. Hanna to be sincere in his statement, but we, as dairymen, must look upon this order as a most difficult one to remove, and if allowed to continue after the war a greater wrong has never been done the dairymen of this Dominion. We are pleased to note the restrictions placed on its sale and use, but we fail to see any set price to protect the consumer.

The old saying, "There's no use crying over spilt milk." But it appears to me the dairymen had a right to be heard when the question was under consideration, and such was not the case. The order was put through without either knowing whether the dairymen were in favour of or against the order. The disallowance of oleo will not be put through without your knowledge. It will be your duty to knock it out, and it will need some organization to do it, so you had better keep busy.

I wish to extend the thanks of the dairymen to the Chief Dairy Instructor and his staff for their valuable assistance to the cheese industry.

I also wish to thank both the Federal and Provincial Departments of Agriculture for the able assistance they have given the dairy industry.

I congratulate the cheese and butter makers for the magnificent exhibit here to-day, and hope they will feel so encouraged that they will go home with a determination to make next year's exhibit still better.

On behalf of the Association, I wish to thank all those who have contributed to our prize list, and also to the Windsor Salt Co. for the badges furnished by them for the officers and members of the Association.

In conclusion: While there was a shortage of cheese in 1917, due largely to the short grass in the fall and high price of feed, still I believe with the abundance of hay and silage together with rough feed in store for this winter, it looks as though cattle should come through the winter in good shape for next season. I look forward for a prosperous season for the dairymen of 1918.

COMMITTEES.

The following Committees were appointed:—

NOMINATIONS.—J. A. Sanderson, Neil Fraser, W. H. Olmstead, Henry Glendenning, John Steel.

RESOLUTIONS.—T. H. Thompson, M. N. Empey, A. J. Robertson, Wm. Brown, G. A. Gillespie.

JUDGES' REPORT.

JUDGING CHEESE.

GEORGE H. BARR, CHIEF OF DAIRY DIVISION, OTTAWA.

I had the pleasure of judging the exhibits at the Cornwall Convention some three or four years ago, and at Napanee last year. There is not quite as much improvement between the Napanee Convention and this as there was between the Cornwall and Napanee exhibits. The finish and appearance of the cheese exhibited at this convention is very much better than at Napanee or Cornwall. This all goes to show that the cheesemakers are progressing. I believe our men have the snap and go in them and will do good work every time if it is put up to them in the proper light. I believe this is the best lot of cheese I ever examined at any exhibition. (Applause.) I do not say that there are any better cheese than we see at other exhibitions, but there are more good cheese here than I ever saw at any other exhibition.

I am considering this problem from the standpoint of the man who moves from one section to another. I believe that if you had allowed the cheesemakers from Western Ontario to exhibit at your convention three or four years ago you would have got into trouble, but now I would like to see you allow the cheesemakers from Western Ontario to compete with you at your annual exhibition.

There is still room for improvement in the finish of some of the cheese. About one-third of them are about as fine as could be shown, and that is saying a great deal. I would like to see your exhibition thrown open to the whole province of Ontario, so that you could show what you can do in an open competition.

Messrs. W. H. MORTON and T. A. THOMPSON supported Mr. Barr in his judgment.

JUDGING BUTTER.

I. M. STEINHOFF: I am sorry that you have not a larger exhibit of butter. Although the exhibit is small it is very creditable. I understand that you have about forty creameries in Eastern Ontario, and one would naturally expect a much larger exhibit, and I believe it will grow. If you want enthusiasm to be put into the exhibition it must be done by the members of the Association. Open competition brings out the best that there is in the maker, and I believe that this branch of your business is bound to grow. You will naturally drift towards butter-making as we have in Western Ontario. There has been quite a break up in some sections of Western Ontario through the establishment of condensed and powdered milk factories. Toronto is reaching out all the time for more cream and more milk, and the winter production of butter in Western Ontario this season has been very small. I do not think the introduction of oleomargarine will interfere very much with the creamery business. Mr. Steinhoff advocated a central convention and exhibition to be held at Toronto.

PRIZE WINNERS, 1918.

BUTTER.

56 lb. Box of Creamery Butter.

- | | |
|--|---|
| 1st—E. J. Smith, Brockville. | 3rd—M. Robertson, Belleville, 118 Front St. |
| 2nd—E. E. Chaffee, Cornwall. | |
| 2nd—Jas. Small, Prescott (T. Eaton Co.). | |

20 1-lb. Prints Creamery Butter.

- | | |
|--|------------------------------|
| 1st—Jas. Small, Prescott (T. Eaton Co.). | 3rd—E. E. Chaffee, Cornwall. |
| 2nd—E. J. Smith, Brockville. | |

Dairy Butter (20 lb. Crock).

- | | |
|--------------------------------|---------------------------------|
| 1st—Mrs. John Carson, Perth. | 3rd—Ruth Patton, Richmond Hill. |
| 2nd—Mrs. Fred. Ferrier, Perth. | 4th—Mrs. J. D. Ewart, Perth. |

10 1-lb. Prints Dairy Butter.

- | | |
|-------------------------------------|---------------------------------|
| 1st—Mrs. John Carson, Perth. | 4th—Ruth Patton, Richmond Hill. |
| 2nd—Miss Annie S. Boyce, Warkworth. | 5th—Mrs. J. D. Ewart, Perth. |
| 3rd—Mrs. H. Sexsmith, Napanee. | 6th—Miss Iva Drummond, Almonte. |

CHEESE.

Flat Cheese.

- | | |
|-------------------------------------|---------------------------------|
| 1st—C. T. Rodgers, Kingston Mills. | 4th—B. C. Monroe, Apple Hill. |
| 2nd—Geo. Alguire, Wales. | 4th—Jas. Small, Prescott. |
| 3rd—Arthur Hawkins, Carleton Place. | 5th—Angus McDonald, Martintown. |
| 3rd—Chas. A. Wilkins, Mille Roches. | 6th—Gilbert Rancier, Wales. |

Stilton Cheese.

- | | |
|---|----------------------------------|
| 1st—Alex. J. Cameron, Cornwall. | 2nd—W. J. Potter, Moulinette. |
| 2nd—John Snetsinger, Dickinson's Landing. | 3rd—Norman H. Purdy, Belleville. |
| | 4th—W. F. Gerow, Napanee. |

September Colored Cheese.

- | | |
|----------------------------------|-----------------------------------|
| 1st—Geo. L. Alguire, Wales. | 4th—Wm. Lines, Crasonby. |
| 2nd—Gilbert Rancier, Wales. | 5th—E. E. Chaffee, Cornwall. |
| 2nd—W. P. Kilfoyle, Franktown. | 6th—A. McConnell, Merrickville. |
| 3rd—L. F. M. Murray, Kemptville. | 6th—J. W. Fretwell, Oxford Mills. |
| 4th—W. J. Potter, Moulinette. | |

October Colored Cheese.

- | | |
|------------------------------------|------------------------------------|
| 1st—Gilbert Rancier, Wales. | 4th—B. G. Monroe, Apple Hill. |
| 2nd—A. McConnell, Merrickville. | 4th—Horace St. Dennis, Martintown. |
| 2nd—T. L. M. Murray. | 5th—B. Maxwell Haley, Lanark. |
| 3rd—E. S. Rodgers, Kingston Mills. | 6th—E. E. Chaffee, Cornwall. |

October White Cheese.

- | | |
|----------------------------------|-----------------------------------|
| 1st—Chas. Wilkins, Mille Roches. | 5th—Jack Cameron, South Mountain. |
| 2nd—Gilbert Rancier, Wales. | 5th—Thos. H. Wood, Perth. |
| 3rd—Geo. H. Rose, Stirling. | 6th—Angus McDonald, Martintown. |
| 4th—Alex. J. Cameron, Cornwall. | 6th—D. Lyons, Ardock. |

September White Cheese.

- | | |
|---|-------------------------------------|
| 1st—Max Haley, Lanark. | 4th—D. Lyons, Fardock. |
| 2nd—Leith Tallman, 18 Lett St., Ottawa. | 5th—Ralph Henderson, Richmond West. |
| 3rd—Gilbert Rancier, Wales. | 6th—E. E. Chaffee, Cornwall. |
| 4th—James King, Almonte. | |

PRODUCTION.

J. H. GRISDALE, DIRECTOR OF EXPERIMENTAL FARMS, OTTAWA.

One of the most difficult things I have to do since the war has assumed such gigantic proportions, and since farming has become such a difficult pursuit, is to address a body of farmers. Farmers are beginning to feel a bit sore if they are egged on or coerced into efforts for greater production, and I do not blame them. Some of the things we read in the city press make one tired; to use as mild a word as possible.

The situation is very serious. Every man and every woman in this country should do everything possible to add to our production. Our farms during 1918 should produce, if possible, more than they ever produced before. In view of the scarcity of labor it is quite natural to ask, "How can it be done?" We have as farmers, been working as hard as we possibly could at this production work. We have done everything possible to increase the production of our farms, and we have had very good reasons for doing so, because prices have never been so high, and markets were never so good. There never were so many buyers for every little thing that we have to sell. I think you will agree with me, that whether we can keep the money or not, there never was so much money passing through the hands of the farmers as there is to-day. Unfortunately we cannot hang on to much of it, because when we go to buying anything that is not produced on our farms we have to pay a long price for it. All we can do is to consider the advisability and importance of producing all we can on our farms during 1918. It has been stated by a man who is in close touch with conditions in the whole world that unless the war ends in eight months everybody in this world, including America and Canada, will be on rations. The farmer is fortunate, because he can ration himself. He can produce the necessities of life without going to a man to hand him out a bread ticket, but the farmer will be rationed for many things unless the situation is improved.

I would like to consider what we as farmers in Eastern Ontario can do, and how we can increase our production. There are only two ways in which food can be produced in greater quantities on our farms. First, we can increase the area under crop, and I am going to deal largely with the productive power of land. We can use live stock to great advantage if we have the forage, if we have not the food to feed the live stock there is no use trying to increase our production. Hence our first aim is to produce all we can from the land. We can increase the food products by cultivating more land, and we can increase our crops by using better methods of cultivation. You all know that if you take a piece of land and rush the work you can produce 15 to 20 bushels of oats per acre, and if you take that same acre of land and handle it properly you can very easily produce 45 or 50 bushels per acre. You will say these improved methods involve extra labor, and where can we get the labor. The Military Tribunals are exempting the farm hands at the rate of about a man and a half or a man and a boy to 50 acres and two men to one hundred acres. We all know that if you have two men on one hundred acres properly cultivated that they are going to be kept pretty busy from the 1st of April to the end of November. There is not likely to be more men than that on the average farm. How are we going to increase the production on our farms? Let us consider what means we can take to bring about this necessary condition. Unless

we increase the production we are going to be put on thin rations here as well as elsewhere. We can do it by better planning. We can do it by better preparation for the work that we are going to do. We can do it by better utilization of the labor that we have at our disposal, both manual power and horse power, and we can do it by prompt action. There are four lines of improvement possible for the farmers of this country: The first is planning; second, better preparation; third, better utilization of the power we have; and fourth, more prompt action. Let us consider better planning. Of course the condition of the field affects what we shall do and how we shall do it, but if we would only plan in advance how much less waste there would be. I do not know the farmers of this district, so far as their actual farming operations are concerned, but I do know the farmers in many parts of Canada, and I do know that in many parts of Canada much time is lost by not having our minds made up as to what we are going to do, by not having planned the crop rotation, and by not having just thought what we should put in each field. The best thing, of course, is to have a first-class crop rotation on the farm, and then you know just what to do when the spring comes.

The next thing in importance is proper preparation. There are many things we can do from now on. There are many things that can be done from now till the middle of April so as to be able to go right to work when the rush comes and have everything planned and everything ready and in its proper place. One thing that should be attended to at once is the hauling out of manure. Many farmers in this country leave their manure in big piles in the barnyard. Many of them make the excuse that they have a spreader, and that it is the proper thing to do. The proper way to treat manure is to haul it out and spread it on the land as fast as it is made. If the snow is deep the best way is to stake the field and then leave it in small piles, and then by means of the stakes you will know where you are at when fresh snow comes. By spreading the manure in this way it freezes and remains frozen until the frost is out of the ground. If the snow is so deep that you cannot very well spread it to advantage, then, as I have said, put it in small piles of from 400 to 500 pounds, or just enough to apply from 15 to 20 tons to the acre. It is better to put on from 18 to 20 tons to the acre than 35 to 40, because it will give you just as good results and enable you to manure just that much more land. Applying a heavy coating of manure is expensive, and it is much better to apply a lighter coat and do it oftener. From experiments conducted on our experimental farms we have found that you lose less when the manure is put in small piles than you do in any other way, except by scattering it broadcast on the field. If you put in large piles it heats and you lose in that way. There are certain times in the year when you cannot haul the manure, but there should not be more than two weeks manure in the barnyard when spring operations commence. We are all stock men here and we have more or less fencing to do, and now is the time to get the material ready and have it just at hand so that there will not be any delay. Many and many a farmer never thinks of getting his seed till March; now is the time to get your seed and have it examined and ready for use. Seed is so scarce to-day that the Dominion and Provincial Governments are spending a lot of time and money in trying to secure a sufficient supply. They are not going to give the seed to you, but you will be able to buy from the Government at reasonable rates, and be sure that it is a pretty good article. Every preparation we can do now towards the speeding up of the spring work will help to increase the crop. In this part of Canada we lose annually thousands and thousands of dollars from disease in oats and barley. Smut is a very serious disease in this part of Ontario, and

every bushel of oats should be treated with bluestone. One dollar invested in bluestone and twenty-five cents' worth of work will make a saving of from five to six dollars per acre.

Now is the time to get the harness in shape, and you should have on hand spare straps and buckles, so that if anything breaks you won't have to spend half a day running into town to get it. Look after your implements, and see that they are in good shape, and a coat of paint won't hurt them. Fifty cents spent in paint will make a great difference in the appearance of your farm implements. When a man is working with a nice clean instrument he feels like a smarter and a better man.

I think our horses might be wintered a little more cheaply on the farm. We have been experimenting on wintering the horses on our farm in Quebec. We give them a shed to sleep in so that the wind won't get at them. We give them hay and a little chaff and some bran and a small quantity of oats. They develop nice long coats, but we can carry them through at just about half the cost for the food and practically no cost for labor, and we can get them ready for work in a week. Just a week before the spring work commences give them some light work and feed them well and they will be ready when the time comes to work.

Then the man himself. I do not like to give you a moral lecture, but in my own work I do like to feel that I am not driven to death. I don't like to feel that people are expecting more from me than I should do. I believe if everyone of us would just think the situation out we would do much better. Here we are in comfortable homes, and the men in the trenches have to fight and march and do all kinds of drudgery, and they are running the risk of being shot every day, and we can really do a little bit more if we will only look at the matter in the right light and feel that what we are doing in extra production is for the benefit of the Empire of which we are all so proud. If we look at it in the right spirit we will go to work willingly and do our level best, and will not be dissatisfied if we have to work hard and long hours in order to increase the production of this country.

Better utilization of the power we have. That is, perhaps, the most important of all. We have ourselves and perhaps a hired man, and we have our horses. How are we going to make the best use of these? If we read the history of the great battles in this war we know that getting ready is half of the battle. Many of the victories that we have won have been the result of preparation. I was told by a man who was through the battle of Vimy Ridge that they were preparing for that battle for three months, and that the two weeks before the battle they went back two miles where they had the ground all plotted out, and the men studied the situation and each unit knew exactly what they were going up against. It had been said that it was impossible to take Vimy Ridge, but the Canadians took it—(loud applause)—and if the farmers of this country will only get ready in time they can increase the crops of this country to a very large extent.

How shall we best utilize this labor, men and horses that we have at our disposal? In the first place, let there be no idle horses. The average man has got over the idea that he must have two or three fat horses around the farm, and they utilize every horse on the farm to the best advantage. If you have a driving horse make him work for two or three months in the spring.

There are a number of ways of saving yourself unnecessary work and of saving the hired man. Many of you have often said, "I have been plowing all day and I am just tired out." There is no necessity for that. You can have a two-furrow plow and ride and do just as good work. You can get a little

cart to ride in behind the harrow that will cost you only \$15, and you will come off the job just as fresh as a daisy. You can put a little step on the seeder, and that will save you many a hard step. By having these little conveniences you will lessen the labor on the farm. Use the riding plow, the riding harrow, and the riding seeder.

When labor is scarce we will have to use larger machines. It will take ten days to plow ten acres with a single plow, but if you use the two-furrow plow it will only take five days. There is the saving of one man. When I took charge at the Experimental Farm at Ottawa, they were using the single plow and small instruments of every kind. After about four years we had so demonstrated this question of larger implements that we were able to do the work for a little bit more than half what it had been costing before.

Then there is the question of larger fields. We should try and cut out the small fields, take down the fences, and make two fields or three fields into one. The longer the line of march for the horse the more cheaply is the work done. It is not only that we do more work with the larger machine, but when it is idle you lose less from the idleness of the man because he is a smaller proportion of the cost of the machine.

Let us consider the operation of some of these larger machines. Plowing an acre of land with a single plow cost us \$2 per acre, with a two-furrow plow and three horses it cost us \$1.25; that is a saving of 75c. per acre by increasing the horse power a little bit. In addition to that we had a satisfied man, for he came in from his day's work in good humor, and not tuckered out and cross.

We have on our farm disk harrows with 12 or 13 disks about 12 inches in diameter. We also have a disk harrows with 17 disks about 16 or 17 inches in diameter, and we have what we call the double disk harrow; the disk in front is an in-throw and the disk behind an out-throw, and it leaves a perfectly level field after once over. On the average field it will leave it in fine condition to sow. It will cost us 90c. per acre to prepare a field with the small disk and 80c. per acre with the big disk and 45c. per acre with the double disk. We go over the field three times with the little disk, twice with the big disk and once with the double disk. If you cannot get a double disk and your neighbor has a disk that does not throw the same way as yours, get your neighbor's disk and put a short pole into it and attach it behind your disk and you will have a double disk that will work almost as well as the double disk. If they are big disks you will require four horses, the small disk can be handled by three horses. It is a mistake to work a horse too hard, just the same as it is a mistake to put two big horses on a single plow plowing four inches deep. The larger the diameter of the disk the further they will go down and the harder they will be to haul.

Q.—Do you take the tongue off the front disk as well?

A.—Yes, we do, but sometimes it is difficult to do that. You cannot work very well with three horses on a tongue, if you have four horses on a tongue it is all right.

Now then, the cost of harrowing an acre. It cost us 17c. to harrow an acre with four sections and two horses, and it cost us 13c. to harrow an acre with six sections and three horses. We never think of using anything but a great big seeder. It may not sound big to a Westerner because they use a big seeder. We use a 20 marker seeder seven inch, that is 140 inches on each trip. We have a little step on it so that the man can ride. With the 11 marker seeder it cost us 22½c. to sow an acre and with the 20 marker seeder it cost us 18c.

to sow an acre. We have sown 25 acres in a day, the best we could do with the 11 marker was 12 acres in a day.

Q.—Did you have just one tongue in that large seeder?

A.—No, two tongues and three horses. If you have three horses and the step for the man you can go at a good speed. If the man has to walk, the horses will have to go slowly. You save the man and speed up the horse. If the horse is going at his natural gait he tires less.

Q.—What is the difference between the six and seven inch?

A.—We took ten acres of grain seeded with the six-inch seeder and for some years it averaged $\frac{3}{4}$ of a ton of grain and a ton and a quarter of straw to the acre. With the seven-inch seeder it averaged 120 lbs. more grain and 200 lbs. more straw. Showing that it was better to have the rows seven inches apart.

Q.—How many years did you cover with that experiment?

A.—I think it was four or five. Nearly every farmer uses machinery to sow corn. We made a comparison of sowing corn with the seeder, with the hand planter, with the disk seeder and with the wire marker. With the hand planter it cost us 64c. per acre, with the seeder 20c., and with the wire marker we did it for about two-thirds of what it cost us by hand. It has this disadvantage that by sowing it in rows you cannot cultivate it two ways. If you use a marker and if you are careful you can cultivate both ways.

Q.—Cannot you save seed by using the wire marker?

A.—Yes, possibly you can. We found it cost us \$3 per acre to plant potatoes by hand, and by using a potato planter we could do it for \$1.25. We found it cost us to dig an acre of potatoes by hand from \$4 to \$5 per acre, and by using a potato digger we could do it for \$1.25.

Q.—How far apart did you put the rows of corn?

A.—Sown in hills 3 feet, in rows $3\frac{1}{2}$ feet.

Q.—If you put the manure out fresh on the field how will your seeder work?

A.—We put our manure on the hoed crop, and then there is no danger. In cultivating use two horses, although in some kinds of cultivating one horse will do better work. We have found that the seven-foot mower is the best. We can cut the crop more quickly and cut it just when we want to. If you want the best results with your hay you should cut after the dew and quit at noon, and therefore the big mower is a great advantage.

Q.—Is not the seven-foot machine liable to choke on heavy grain?

A.—Our fields are fairly free from stones. If we do not get three and a half tons of clover to the acre for the first cutting we are not satisfied. If you have a good big horse he will handle a twelve foot rake, and it saves a lot of time.

It is practically the same thing in harvesting. The eight-foot binder is the binder that the farmer with 100 acres should have. If the grain is badly down of course it does not work so well. I do not suppose anybody cuts corn by hand now. We find that it costs \$2 per acre to cut by hand and 84c. with the binder. When the corn is cut by hand it takes two men to handle it as quickly as it can be done by one man when the binder is used. The use of better implements and planning will do a great deal to offset the loss of labor on our farms. The next thing in importance is preparation, have everything ready, and the next is prompt action. When it comes time to get on the land, get on the land. We have a superintendent on our farm in Quebec who is a hustler, and I had impressed upon him the importance of getting on the ground as soon as he could. I said to him one day "You cannot get at that wheat field too soon." He started in at 4 o'clock in the afternoon, and as it began to look cloudy he

went out at night with a lantern and got it all in by 9 o'clock. The people down there thought he was crazy. Do you know he was the only man down there who had a crop of wheat, and he had 43 bushels to the acre. I do not ask you to sow by lantern, but I do say to get at it as soon as you can, and keep at it until you have it all in. We tried seeding at different dates a week apart until sometime in June. We found that while the first seeding was not the best, it was so near the best that it was a great advantage to get it in the very first opportunity.

There are not very many ways in which we can economize around live stock, because we have our buildings built, and we have not the time or money to remodel them, but there are a few things that are worth while. Get a manure carrier, and get a feed truck. Run your stock together, and it will save time in feeding. You will save in a good many ways by getting a milking machine. We have tested out every milking machine on the market. We have nine of them. There are some that are better than others. If you were to ask me about some particular machine I might be able to tell you about it, but I am not going to stand up here and say this or that is the best.

Q.—Do you have to strip the cows after using the milking machine?

A.—It is well to go over them although you do not get much milk, but once in a while you will get some milk.

Q.—Have you found any difference in milking different breeds of cows?

A.—No, we have not.

MR. GLENDINNING: I haven't heard of any Jersey breeders using a milking machine?

A.—I could not say as to that, but I do know that we use it on one. The heifers take to the machine, and are kinder after milking with the machine than by hand. We have about one hundred cows to milk, and there is only one of them that will not stand for the milking machine.

Q.—What about the sanitary condition of these machines?

A.—They have to be carefully washed.

Q.—There is not one man out of five that keeps them clean?

A.—I think you are about right, but they can be kept clean.

THE PRICE OF CHEESE.

J. A. CAMPBELL.

It is a well known fact that the price of dairy products, especially that of cheese, has been set. There is no doubt that the farmers of Eastern Ontario are quite willing to do their part to increase production, but they naturally feel that they should be properly paid for their labor. The two industries of dairying and hog production work together. In the County of Dundas we have a condenser, and we are likely to have more of them. The location of this condensery has closed nine cheese factories. It will also have the effect of decreasing the production of pork. I will not go further into details but will simply present this resolution:

Moved by J. A. CAMPBELL, seconded by A. McGRURER: "That whereas, the price of cheese has been fixed at a level which makes milk for cheese making less profitable than milk disposed of in other ways; and,

Whereas, this action has tended to discourage the production of milk for cheese making; and

Whereas, the closing of cheese factories caused by low prices for cheese and competition from condenseries in turn discourages the production of pork; and,

Whereas, cheese is one of the standard foods of the British people and an important part of the army ration.

Be it resolved that we, the dairymen of Eastern Ontario assembled in session, with a view to increased production at a reasonable profit to producer, demand prompt action by this Association and that a deputation including a representative producer from each Township in Eastern Ontario, chosen at this Convention, interview the Federal Minister of Agriculture."

MR. McGRUBER: I take much pleasure in seconding that resolution. I am a dairy farmer, and I must say that there is a great deal of dissatisfaction among the dairy farmers of Eastern Ontario. We have listened with a great deal of pleasure to the last speaker. We are under a great disadvantage in producing cheese at the present time. The price set for cheese does not tend to increase production, in fact, it retards production. When one considers the high price we have to pay for our feeds it does not pay to produce milk at the prices we are receiving. (Applause.)

MR. T. A. THOMPSON, Secretary: If the meeting desires to pass on this resolution to-day it cannot be helped, but I would strongly urge upon the meeting that it be left over until to-morrow when the members of the Cheese Commission will be with us.

MR. CAMPBELL: I think it is up to the people here this afternoon to deal with this resolution, I do not see that it will have any effect on what Mr. Alexander or Mr. Ruddick have to say.

A MEMBER: Does that resolution state that there shall only be one delegate from each district? I think the farmers would like to have a chance to go down there in hundreds, this is a matter that touches them so closely. We know that the conditions as they are at present have a distinct tendency to retard production.

MR. J. W. McLEOD, Cornwall: I think this is a very timely resolution to bring before this convention this afternoon. We are prepared to tell these people just what it costs us to produce a pound of milk. When they set the price last year we did not have an opportunity of doing that, we were not consulted, but we submitted to it and produced as much as we possibly could, and we will still continue to produce all that we can, but I think we are entitled to just recompense for our labor. We are not asking to make any great fortune out of it, but we do ask that we should be at least paid the cost of production. We are not getting the cost of production at the present time, and we can submit figures to establish that fact. I have been engaged in the cheese trade for 17 years. I have been secretary of the Cornwall Cheese Board for 17 years, and I know what I am talking about when I say that the farmer is not getting the cost of production. We will be hit harder than ever next year. The price of wheat in the North-west has been fixed at \$2.21. Last year wheat was bought for from \$1.35 to \$1.75 per bushel. The Railway Commission has put up the freight rates 15 per cent., and that means that it will cost us more for our feed for our cows. I feel that it is time we had a talk with the Government on this matter and see what can be done to assist the dairy farmers of Eastern Ontario.

A MEMBER: I think we will see that the cheesemakers will be asking more for the manufacture of cheese.

MR. RODD, Glengarry: All we ask for is the cost of production. I think we should all receive the cost of production plus a reasonable profit on our investment.

A MEMBER: Why should the farmer be held up and told what he has got to sell his produce for, and submit to being offered whatever is asked? I think that is a question that should be decided right here to-day.

A MEMBER: When this Commission was appointed, the dairymen of Canada were not consulted. The men who owned the cows had no say whatever, and I believe the suggestion I made is the proper one. The patrons of the cheese factories are quite willing to go to Ottawa and lay their views before the Government, and I would not limit them to one or three. Give all the dairymen a chance to go to Ottawa. The grainmen went in thousands, and they got a good price for their grain, and the price we get f.o.b. Montreal is nothing compared with the deal that the Western men got for their wheat, and we feel that we should have just as much consideration from the hands of the Government as the Western wheat men had. I say give the boys a chance to go to Ottawa.

A MEMBER: If one man is selected from each township or county it would devolve upon him to select the other men to go with him, and if we chose one delegate to go, then he could choose the others.

After considerable discussion the motion as amended, that one representative attend from each township, was carried unanimously.

DAIRY HERD RECORD WORK.

GEO. H. BARR, CHIEF, DAIRY DIVISION, OTTAWA.

In no line of agricultural work in Canada is there a greater opportunity to increase production than there is in the improvement of the dairy herds.

The average yield of milk per cow in Canada is only about 4,300 pounds per annum. Compare that with individual records of over 25,000 pounds of milk in a year and herd records of over 10,000 pounds per cow, and one can readily see the possibilities for improvement.

There are two ways in which a farmer can improve his dairy herd: (1) He may sell the cows he has and buy new ones; or (2) He may keep records of the milk and fat produced by each cow, breed the best cows to a sire that has a long line of heavy producing ancestors, and then raise the heifer calves.

The first plan is the quickest, but likely to be the most expensive: the second plan is good for this reason; it develops and trains the owner to handle successfully his herd as it develops year by year into a fine piece of machinery, if you like.

The first step in improving a dairy herd is to be dissatisfied with the cows on hand. The second is to either own a properly bred dairy sire or be in a position to have the use of one, because the improved milking qualities of the heifers must come from the sire (the dam cannot reproduce better than herself) so before a farmer goes to the trouble and expense of keeping records of the milk produced by his herd, he ought to first solve the sire problem. The next step is to know the good cows. We believe this knowledge can be obtained accurately enough for all practical purposes by weighing the milk and taking a sample for testing night and morning on three days each month at intervals of ten days, say on the 1st, 11th and 21st. The total of the weights on these three days multiplied by ten gives the pounds of milk produced in thirty days, and the pounds of milk multiplied by the test (percentage of fat) and divided by 100 gives the pounds of fat. Thus for example, if the six weighings on the three days give 16 and 14 pounds, 15 and 13 pounds and 14 and 14 pounds respectively,

the total would be 86 pounds, which multiplied by ten, gives 860 pounds, as the calculated yield of milk for the month. If 860 be multiplied by 3.5 (supposing that to be the percentage of fat in the composite sample) and divided by one hundred, the result is 30.1, which would be the calculated pounds of fat for the month. This repeated from month to month during the full lactation period will give a record of the milk and fat produced accurately enough to determine the relative standing of the different cows in the herd. With the figures in black and white regarding the production of each cow before him, the owner has something definite to work on in building up a profitable dairy herd. He knows which cows to keep and breed from, he knows which to sell for beef if they are not up to the standard as milkers, or the ones for which he can demand a high price if it is desirable to sell. He also has a safe guide in feeding, for the scale will show if individual cows respond to feeding. He will be able to avoid the waste of expensive feeding of cows that have not the necessary dairy capacity to give increased yields from increased rations.

Let us see if this is worth while. The average yield of milk per cow for all Canada has increased fully 30 per cent. since the cow testing work was first commenced by the Dairy Division in 1904. This means that the total value of Canadian dairy products was greater by at least \$50,000,000.00 in 1917 than it would have been if there had been no improvement or increase in the herds since that time.

It has been my business now for several years to direct to some extent the Herd Record Work carried on by the Dairy Commissioner's Branch and in doing this one of the essentials is to discover the weak points in the scheme.

We have tried to make the office and field work efficient, so that the farmers who have undertaken the work of sampling and weighing might get all the information obtained as regularly and promptly as possible. There are still weak points in our end of the work, and I am always glad to receive suggestions from the men who are weighing, sampling and testing the milk. In watching this work from year to year, I am forced to come to the conclusion that the most difficult part to work out successfully in the whole scheme is making proper use of the information contained in the records. How many men are like the one who said, "I have been testing my cows regularly for three years, and they are not giving any more milk now than they did before I commenced testing." Now what was wrong? The weighing and sampling was done right, the testing done accurately, the total milk and fat produced by each cow was calculated properly and the figures returned to the farmer. Therefore, we cannot lay the blame for failure on the plan for getting the records, neither can we blame the cows; no doubt, they did their best. We must come back to the point already mentioned: failure to put the information obtained into practical use.

I believe the greatest hindrance to the successful building up of a dairy herd is that the farmers do not fully realize the importance of using properly bred sires.

We will suppose some farmer has a mare that can trot a mile in three minutes. He would like to raise a colt from her that would go just a little faster. What does he do? He begins looking around for a properly bred trotting stallion, but he finds there are none near his home, or the fee is very high, so he just breeds her to an ordinary bred Clydesdale. Does he get a colt that will trot a mile in three minutes? Not likely.

How many farmers all over the country are following a similar plan for increasing the milking qualities of the heifers they are raising?

The cost of a well bred sire is considered too great, or the fee charged by some one who has a good one is too high, so they use an ordinary grade and the heifers are not any better than the dams, probably worse, and so they go on year after year in this hit and miss fashion, mostly the miss.

Will any one sit down and figure out how much more money he would be getting from his herd to-day if he had started using a properly bred dairy sire ten years ago, and had increased the yield per cow as fast as some men have done, doubling it in five or six years by knowing the best cows to raise heifer calves from, weeding out the low producers and feeding to better advantage, as every man will do who has the right viewpoint in keeping herd records.

If you are keeping records, can you not get more out of them than you are doing? If you are not keeping any records, would you not learn some useful lessons by doing so, and finally, always remember that the most successful man is not he who knows the most, but it is he who can put the greatest amount of knowledge into practical use.

ADDRESSES OF WELCOME.

His Worship, J. J. Hands, Mayor of Perth and Dr. A. E. Hanna, M.P., on behalf of the people of Perth and the surrounding country cordially welcomed the delegates and expressed the wish that the convention be again held in the town of Perth.

FOOD CONTROL IN CANADA.

DR. J. W. ROBERTSON, OTTAWA.

The statement that he had attended a dairymen's convention in Western Ontario forty-one years ago, and a compliment paid to the dairymen on the excellence of the exhibit of cheese, formed an introduction to the following address.

The only thing worth while to do is help to win the war, because if we do not win the war, we have lost everything that our fathers fought for and our mothers have prayed for. (Applause.) Lost everything. And the greatest danger that has ever faced us faces us now. We have not won the war. Germany is not beaten. We are winning, but we have not won, and the reason is that we may not have enough food this year and next to see ourselves and our Allies safely through the time of strife. That is the risk of the war.

There is no question about the superiority and domination of our men and our munitions and our fleet and our money, since the United States have come in, but we are short of food. That was what shook Italy's morale, because the women and the children were getting white faced at home, because we have a democracy in our motherland and in France and in Italy which is the most difficult kind of Government to maintain that humanity can possibly set up. That is what Arthur Balfour said. It was the most difficult because it is the best, and the best things are always the most difficult, and if the people of England do not get bread in plenty, and France and Italy do not get bread in plenty, their workmen in the munition factories, and their men fighting in the trenches will not be able to stand up and fight as they should because if their women get pale and their children do not get enough to eat, they will complain.

There never was a time when we were faced with so great a peril as we are at the present time. We are in the midst of so much plenty that we cannot visualize that state of affairs. We cannot conceive that there would not be food enough to go around, and we sometimes are not willing to do without a single bite.

I can visualize France. I went across France after we had taken the first of the trenches at the battle of the Somme. I can see now a great wheat field, and six old women and some young children, and one old man gathering up the heads of wheat that the rakes had left, that nothing should be lost, because France needed every ounce. That was in the autumn of 1916, and France has reaped her crop of 1917 by women labor. The women of France have stood out heroic among all the women of all the races for all time in what they have done in this war. Nothing grander or sublimer than the work they have done. There was one woman looking for a man among the troops when they came back from the great battle of the Marne, and she could not see him. An officer came over and said, "Madam, your husband fell in our victory for France." There was a little boy clinging to her skirts, three years old, and she lifted him and cried "Vive La France." The man dies and the child goes on. That is the spirit of the women of France.

The crop of 1917 was not as big as the crop of 1916. The land is getting weedy and fertilizers are scarce, and in 1917 France had less than half a crop compared to what she had in 1913 and 1914, and France is crying for bread, and we have not got it to send. All the wheat we have in the United States and all we have here will go just about half round to give France and Italy and our Mother Country an adequate supply until the next harvest is reached. Therefore, we must save every bushel we possibly can.

There is wheat lying in Australia and India, and the Germans sent submarines out to keep it there, and America is the only safe place to send it from. If we do not save and produce, and produce more, we will lose all that is dear to us. I am not saying you should do more than you have done. That is not my business. It is my duty to tell you the situation and leave it to your conscience. Nobody is going to sit idle if he is conscientious in his efforts. Italy is in a very bad way. It is not possible or permissible for me to tell you things I know. France is in a bad way, and England has been in a way of privation for a long time.

A man from the Food Controller's office in England was in our office not long ago, and he saw a bit of bread lying on the floor. We had been testing barley bread and rye bread and other breads, and a little bit of crust as large as my little finger had fallen on the floor, and he said to me, "Don't you see that little bit of bread? Don't you know if that was in England, the lowest fine would be £50 sterling for wasting a bit of bread." The garbage can is watched, and if any man should find in the garbage pail a piece of bread, the fine would be £50.

I always thought it was a disgrace in our house to have a poor looking table, but now a good housekeeper never has a scrap left on the table if she can help it. She never has more than just enough. If you want to say a grace at your meal that has art in it say, "This we do in remembrance of Thee," and then we will seek to do with less white bread, and not eat bacon or beef. "This we do in remembrance of Thee." Then you will work better and the Lord will bless your crops. It is well to pray with sincerity and understanding so that you will know what you are doing, and do something worth while.

The papers chide the Food Controller because he does not keep down the prices, but that is not his business. His business is to save bacon for the boys and for the Allies, and if we do not get any bacon at all, we will not suffer

much privation. The men in the army take six times more beef per head than the average man at home, and four times more bacon per head. I saw our men marching into Courcellette, men in the pink of condition, everything at the tip-top notch of efficiency, such men as these have to be fed on the best of food and regularly or there may be some little disability when the time of trial comes. Every man has his breakfast on time because they are always on time with everything, and the business of the Food Controller is to control food in the midst of plenty so as to be able to send every ounce that we can spare for the boys at the front.

We must all be Food Controllers in our homes, otherwise our Allies cannot get food. We must have voluntary co-operation by all the women.

Everything is against a big harvest for the next two years, and everybody is crying for more food, the soldiers and the sailors and the munition makers, and therefore everybody who can produce an extra bushel or an extra pound of beef or cheese is helping to win the war.

When Prof. Grisdale was talking, I could not help but think that if every man would sit down in the morning and dedicate ten minutes to silent meditation on how he can help to win the war on his farm, of those things which should be ready for the spring, he would have his machines all ready and everything planned out. If we can win this war, it is well worth dedicating ten minutes a day to meditation because if we were to lose the war, it would be a tragedy such as the world has never seen. It is necessary for the laborers to pray and to plan for intelligent labor, and then when that is all done we won't have done very much, because we won't have caught up to the live stock shortage. There are 33,000,000 hogs short on our side since the war broke out. We cannot get away from the risk of famine until the crop of 1919 and 1920 are gathered. Even if we get peace this summer, we cannot get out of the risk of famine until the harvest of 1920 is gathered. It is a serious matter, and I feel that it is up to me to try to impress upon you the fact that you should do your best at this time.

Shortly before I left Ottawa to go West, the Lord Chief Justice of England spoke to some of us in Ottawa, and this is what he said, "My office is that of Lord Chief Justice of England. I represent justice which we as a nation and a race have struggled for, have fought for, have died for, and why am I not at home looking after the duties of my high office? Because my country needs me here, and sent me over. And why am I over here? To tell you some things as simply as I can with the voice of authority. Don't waste one bit of food. Ourselves and our Allies need it." He further said, "I had not seen white rolls for months and months, and I saw some on the table on board the ship, I said, 'I must have at least two rolls,' and then I said, 'Why should I do that, because if I had two rolls, there are two rolls less on the ship,' and I just took one roll." Don't waste a bit of bread, the Allies need it. Don't buy the automobile you do not require because it will use up petrol that we need. Its costs labor and consumes time, and uses up money, and you must save all the money you can and loan it to the Government. That was the message that we received from the Lord Chief Justice of England.

The situation is tremendously grave, and we can all help without any sacrifice. We should make ourselves worthy of the nation. We must stand by our boys in the battle line, and you can do it by saving every single bite you possibly can. There is no way of growing crops except by single plants, and the only way to save food is by single bites. If you do not forget and do not fail to live up to the motto—"They who endure to the end"—we shall be saved. We are now winning, and we will make ourselves secure by saving food, and then when victory has been

won and peace has been established and every man in his own place can say, "Thank the Lord, though I could not do much, I did my bit, I did my best," then you will receive a blessing.

ADDRESS.

GEO. A. PUTNAM, DIRECTOR OF DAIRYING FOR THE PROVINCE OF ONTARIO,
TORONTO.

Besides making explanation of the moving pictures to be shown to-night, I shall take advantage of the occasion to say a few words regarding some features of dairying which have impressed themselves upon me during the past season in directing the work of dairy instruction by the splendid men who have had charge throughout Eastern and Western Ontario. We have been very fortunate for a great many years in having identified with the dairy branch a very energetic and faithful body of men, and while I recognize that we at headquarters have an important responsibility in connection therewith, the success of the work must depend upon the capabilities, the tact, and the industry of the men directly under their charge.

There has been no shirking of responsibility on the part of the members of your executive in making requests for more money, and I am always glad to be able to assist in securing the additional funds necessary to develop the industry along progressive lines. You are very fortunate in Eastern Ontario that dairying was emphasized many years ago by both the Government and public-spirited men, with the result that it soon became the premier agricultural activity, and I wish to-night to congratulate the farmers of Eastern Ontario on their prosperity, due to business ability and industry, and when I congratulate the farmers I congratulate every business man in Eastern Ontario, because it is to the dairymen that you owe your success.

Dairying has for many years been the leading branch of agriculture in Eastern Ontario, and the Dairymen's Association is the most representative of the farmers' organizations. Not many years ago, you were getting only 8 or 9 cents for your cheese, and at that time, as you all know, there was a considerable percentage of poor cheese manufactured, and the people of Ontario had to eat a great deal of that poor cheese and pay 13 to 16 cents a pound for it retail. Even in those days of cheap prices, when cows could be purchased for \$40 or \$50, your Association was looked upon with great favor, and the daily press of the larger centres asked for telegraphic reports of your meetings so that they could give full prominence to the work of the Dairymen's Association. While your work was of such great importance in those days, it now occupies a relatively more prominent place as the leading branch of agricultural activity.

Great credit is due to the men who stood by this Association and by dairying in the darker days when the money received for the goods produced was not at all in keeping with the capital invested, the labor involved, and the risk run.

The speaker made reference to a report published in 1885-86 in which the essentials of successful dairying were set forth. In making the appeal for "highest quality," which is essential to permanency in the industry, the slogan from 1885 to the present has been cleanliness: cleanliness in the care of the cattle, in milking, in caring for the milk on the farm, in transportation, and at the factory. If the patrons of cheese factories generally realized the importance of absolute cleanliness

and proper cooling of the milk many of the difficulties which the instructors meet would largely disappear.

The Department of Agriculture for the Province of Ontario in its support of the Dairymen's Associations and in maintaining the staff of instructors and the Dairy Schools has put that one question to the front: highest quality. We have all produced in Ontario a considerable quantity of the very best cheese that can be manufactured, but the price until recent years was kept down because of the poor quality of a considerable proportion of the output. It has been the aim of the Department for the past twelve or thirteen years, by maintaining a staff of instructors and sending out literature, to secure a uniformly high quality cheese. Quality will tell, and you cannot get it until the individual producer recognizes that he has a personal responsibility in the matter.

The dairymen of Eastern Ontario have attained a standard which has not been demonstrated more convincingly than by your exhibit in this town to-day. In that exhibit you have probably the most uniform lot of cheese that has ever been shown in the province. There is only .1 of a difference between the first five or six cheese on exhibit, and I desire to congratulate the instructors and Mr. Publow, the Chief Instructor, on the results of their energetic work.

I was rather surprised when I noticed that among the three things emphasized in 1886 was "Systematic Marketing," and may I ask the dairymen if they consider they have done their duty in further co-operation in all branches of dairying? I would like to suggest that provision should be made for the unifying or bringing together in one central executive all the dairy interests of this Province, so that when any subject affecting the dairymen's interests is brought up, you will have a central organization which will be representative not only of the cheesemakers, the buttermakers and the factory owners, but which will represent the producers of the whole province for all branches of dairying. It is time that your various organizations and some of the dairy interests not yet thoroughly organized were linked up in a central executive so that the farmers would have more of a voice in their own business, especially in so far as marketing is concerned.

You must stand with a united front if you want to secure justice and build upon a permanent basis. You must see to it, not only that you get all the money you can (and that is why you are farming)—but you must also see that each gets a square deal—the farmer, the maker, the factoryman, and the merchant. I do not know that you need spend very much time in seeing to it that the merchant gets a square deal, because he is capable of looking after himself, but you must recognize that the merchant must be considered, and the producer must be considered. Especially would I ask you to give consideration to the maker. You must make the business so attractive that the best men will qualify themselves as makers, and look forward to it as their life's work, with some hope of making a fair living and providing for their old age. You must look to it that your makers are well paid if you desire permanency in the industry.

The speaker outlined some of the excellent work which the Women's Institutes are doing, especially in relation to the proper nourishment and care of children and the matter of food conservation. Full particulars as to the general work of the Women's Institutes of Ontario, which now embraces 900 branches with over 30,000 members, will be found in the Women's Institute Report, which may be had on application to the Department of Agriculture, Toronto.

Moving pictures bearing upon bacon production, judging of dairy cattle, were exhibited and explanations made.

REPORT OF DAIRY INSTRUCTOR AND SANITARY INSPECTOR.

MR. G. G. PUBLLOW, KINGSTON.

I have the honor to present for your consideration at this time the 15th annual report of the work of Dairy Instructor and Sanitary Inspector as carried on in Eastern Ontario during the year 1917.

Just fifteen years ago we had our first year of organized dairy instruction under the present system, followed by the annual meeting of the E.O.D.A., at Belleville, Ont., and it would be very interesting to go back to that date and by following along from year to year compare conditions, changes, alterations and plans for improvement, up to the present time. But we are now living under exceptional and extraordinary conditions, conditions that compel us to devote all our attentions and energies to the requirements and needs of the present and future rather than loiter over things as they used to be. I will therefore in what I have to say confine my statements largely to the work of the past season, with, perhaps, a few comparisons with the previous one, such as has been my custom in the past.

For convenience and system in our records we deem it advisable to keep separate the details of factories manufacturing butter and those manufacturing cheese and its by-product whey butter.

The first group has again been largely under the direction and supervision of Mr. Zufelt, who has prepared the following report which I take pleasure first of all in presenting to you.

CREAMERY REPORT.

Number of creameries in operation	40
Number using pasteurizing cream vats	17
Number collecting cream in tanks	2
Number collecting cream in large cans	13
Number collecting cream in individual cans	24
Number of creameries using scales for testing	25
Number of creameries using moisture tests	5
Number of patrons supplying cream	6,680
Increase over previous season	13 %
Amount of butter produced from May 1st to Oct. 31st.....	4,080,000 lbs.
Increase over previous season	9 %
Average selling price per lb. of butter	39.5c. per lb..
Increase over 1916	6c. per lb.
Total expenditure, including new buildings and general improvements	\$35,000 00

The buttermakers are to be congratulated on the excellent quality of butter produced this season, and although much of this improvement was due to favorable weather conditions we must at least give the individual makers credit for taking advantage of every condition which enables them to produce a better butter.

The decided improvement in the butter this season emphasized the fact that if we wish to improve the quality of the butter we must first improve the quality of the raw cream. Whilst pasteurization will do much towards increasing the keeping qualities of butter, it will not overcome the defects which are actually present in the cream, and the butter-maker who thinks he may take in old and rancid cream and by pasteurization make a fancy quality of butter will be sadly disappointed.

Our one outstanding need is a better cream supply, and for that reason I would urge a serious consideration of some modified form of cream grading suitable to our eastern conditions. The sooner we make a start the sooner will we arrive at our destination, for we can never arrive if we never start.

Instructors and Groups	No. of factories in group	No. of full day visits	No. of call visits	No. of patrons	No. of patrons visited	No. of samples of milk tested for adulteration	No. of samples deteriorated	No. of sediment tests made	No. of factories pasteurizing whey	No. of factories making whey butter
Almonte—										
Fred Wright.....	39	43	63	1,788	20	1,331	3	100	0	4
Alexandria—										
C. B. Larry.....	36	44	264	1,057	40	1,034	3	600	0	0
Brockville East—										
A. H. Wilson.....	48	56	212	1,232	31	1,131	2	761	19	6
Brockville West—										
S. S. Cheetham.....	42	53	150	1,109	50	1,121	3	300	11	20
Brockville North—										
Peter Nolan	41	53	235	1,153	15	1,170	5	180	0	21
Belleville—										
Hugh Howey.....	35	63	243	1,558	144	2,400	5	830	3	1
Cornwall—										
J. Buro.....	40	61	415	1,443	84	901	2	300	20	2
Campbellford—										
R. T. Gray	36	60	164	1,516	36	2,290	4	108	1	0
Finch—										
Thos. J. Ellis	39	34	240	1,220	7	276	0	282	0	7
Kemptville—										
W. G. Gardiner	41	80	288	1,606	25	1,417	4	687	3	3
Kingston—										
Fred Clark	48	63	237	1,378	29	1,554	2	509	7	6
Peterboro and Lindsay—										
R. W. Ward	37	72	237	1,882	96	1,396	7	479	5	8
Madoc—										
Chas. Linn.....	35	95	138	1,179	40	1,300	2	350	3	4
Morrisburg—										
C. W. Norval	43	51	212	1,331	48	1,248	0	230	0	29
Ottawa—										
Jas. Mitchell.....	38	63	212	1,214	16	1,315	3	245	1	5
Ottawa East—										
A. McKinley	47	60	242	1,439	2	1,268	8	1,072	0	3
Perth—										
J. H. Echlin	27	51	169	1,437	104	1,247	0	28	1	11
Pictou—										
Jas. Irwin.....	20	67	124	2,211	15	3,247	11	52	3	15
Plantaganet—										
Jas. McAllister	38	64	277	1,119	14	1,125	4	556	2	1
Napanee—										
G. H. Bensley.....	39	45	197	2,660	30	3,672	3	40	2	5
Vankleek Hill—										
G. H. Barker	40	44	305	1,126	35	1,271	4	584	1	0
Totals.....	829	1,222	4,630	30,658	881	31,714	75	8,293	82	151

Average % of fat in all whey tested	No. of factories pay- ing by test	Average % of fat in all tests made	Lbs. of milk de- livered from May 1st to Nov. 1st	Lbs. of cheese made from May 1st to Nov. 1st	Average lbs. of milk to make a lb. of cheese	No. of factories with cool curing rooms	No. of factories which made improvements in buildings or plant	Estimated expendi- ture, including new buildings	No. of new factories built	No. of new silos built	No. of patrons using milking machines
.24	3	3.80	41,637,676	3,808,160	10.92	4	6	1,071	0	32	0
.20	10	3.60	34,500,709	3,229,725	10.71	0	15	5,000	0	20	18
.23	2	3.50	54,241,006	4,887,210	11.12	1	23	4,300	1	34	41
.26	3	3.50	57,075,909	5,229,563	10.91	3	23	5,350	0	10	150
.27	0	3.50	54,185,360	4,816,496	11.24	1	16	7,500	1	25	21
.28	0	3.50	51,855,378	4,605,719	11.25	6	5	10,137	1	47	40
.24	15	3.67	53,450,706	4,904,483	10.89	3	29	9,080	0	78	38
.27	0	3.46	43,327,981	3,788,074	11.40	3	21	2,770	0	46	33
.22	3	3.60	42,807,618	3,960,184	10.80	0	11	1,400	0	36	20
.22	13	3.40	51,335,860	4,461,665	11.50	1	38	4,633	0	50	20
.25	1	3.63	46,206,250	4,270,448	10.82	0	13	3,600	0	7	26
.23	13	3.42	39,774,240	3,562,259	11.16	12	33	4,092	0	95	13
.26	0	3.50	38,896,418	3,467,990	11.21	3	4	6,756	0	12	60
.26	3	3.53	54,229,808	5,007,431	10.82	0	29	3,000	0	73	12
.24	15	3.47	39,321,410	3,557,596	11.05	1	28	4,930	0	37	20
.26	11	3.64	44,208,597	4,093,348	10.80	3	21	8,580	1	23	2
.24	0	3.44	43,022,367	3,874,231	11.10	0	29	3,455	0	22	11
.26	0	3.41	59,445,673	5,392,748	11.15	11	25	10,700	0	84	47
.24	1	3.68	22,818,346	2,214,188	10.30	0	20	3,293	1	14	2
.23	0	3.50	79,700,689	7,211,910	11.05	5	11	2,965	0	39	36
.23	2	3.62	39,341,189	3,627,326	10.84	0	18	4,100	0	19	15
.....	95	.....	991,384,190	89,960,754	.....	54	416	106,712	5	803	625

CHEESE REPORT.

CHEESE FACTORIES IN NORTHERN ONTARIO.—In the Northern part of New Ontario we are meeting a new field for dairying, and during the past season there were 19 cheese factories and three creameries in operation, nearly all having been established within the last two or three years. Mr. McAllister (one of our instructors) visited all of these once during the season, and from his report we give the following information:—

In the 19 cheese factories there are 439 patrons with 2,110 cows, which furnished 6,121,809 lbs. of milk, making 615,631 lbs. of cheese. The average production per cow was 2,901 lbs., considerably less than in the older part of the province, but the average quantity of milk per lb. of cheese was only 9.94, as compared with 11.02 throughout the whole district.

In the three creameries 221,024 lbs. of butter was manufactured from cream furnished by 282 patrons.

There has been sufficient growth in the industry in this new section to indicate somewhat the future possibilities, and we should make arrangements to give them inspection on an equal basis with other districts.

CHEESE FACTORIES IN EASTERN ONTARIO.—There were 829 cheese factories in operation in Eastern Ontario in 1917, a reduction of 20 from the year before. These factories received from the instructors 1,222 full-day visits and 4,630 call visits. Four hundred and sixteen factories made improvements in plant or buildings and five new factories were built, the total expenditure for all totalling \$106,712. The factories generally are in better condition than ever before, in spite of the many increased expenses which all factory owners have been obliged to meet owing to the natural advances in cost resulting from war.

PATRONS.—The number of patrons supplying milk to these factories was 30,658, a slight increase of 33 over 1916. The instructors personally visited 881 of them for the purpose of securing improvements in their methods of caring for the milk supply, and in most cases better results were immediately observed.

NUMBER OF COWS.—The number of cows increased over 1916 from 276,132 to 285,050, a difference of over 8,000, which is most encouraging and in compliance with the demands of the country for increased production. The average production per cow, however, decreased from 3,650 lbs. per cow last year to 3,477, a difference of 173 lbs., which must be attributed to the more unfavorable climatic conditions, and to some extent to the scarcity or higher cost of food-stuffs.

MILK DELIVERED.—The total amount of milk received during the period from May 1st to October 31st was 991,384,190 lbs., or a reduction of about 9 million lbs. In connection with this, however, we must remember that a good many factories stopped the manufacture of cheese early in the summer and sent the milk to condenseries, so that in all probability the total production of milk was at least equal to 1916 from the same number of cows.

POUNDS OF CHEESE.—The make of cheese totalled 89,960,754 lbs., or about 1,000,000 lbs. less than in 1916. The average selling price, however, was about $2\frac{3}{4}$ cents a lb. more, so that whereas the total revenue in 1916 was about \$17,000,000, this year it amounts to over \$19,000,000, an increase of over two millions and more than six millions more than in 1915.

AVERAGE YIELD OF CHEESE.—Last year it took 11.07 lbs. of milk to make a lb. of cheese, and this year it is slightly less, 11.02 lbs., in spite of the necessity of having to resort to less efficient substances for coagulating the milk. The difference was no doubt due to the fact that there was less overripe milk, the season being

rather cooler than usual, especially the night temperatures, which have so much to do with the general fitness of milk for cheesemaking.

MILK TESTING.—Babcock and lactometer tests were made of 31,714 samples of milk, and I regret to say that 75 of these were found to have been adulterated, an increase of 13 over last season. The usual legal action was taken by the Official Prosecutor, with the result that 65 fines were imposed to the extent of \$2,720 (two cases still pending). One half of this was paid over to the treasurer of the Association and one half to the respective factories concerned. The criminal practice of adulterating milk seems to gradually increase from year to year, and probably will in spite of severe penalties, so long as the present pooling method of paying for milk continues.

SEDIMENT TESTS.—The instructors made 8,293 sediment or fermentation tests of individual milks, over 1,000 more than last year, their value being more and more recognized in demonstrating to patrons the folly of neglect and the wisdom of cleanliness in all operations surrounding the production and care of the raw material from which the cheese is manufactured.

QUALITY OF CHEESE.—The fact that a Commission was appointed to control the shipment of cheese for export gave us perhaps even closer and more accurate information on the quality of the cheese after they left the factories, and I must say that the general report has been most satisfactory. As nearly as I can estimate from all reports received, at least 90 per cent. of the total make were passed in first grade, and nearly all of those classed lower than this were made in the month of August, when the weather was unusually hot. This is what we always find every year, while the weather is cool the milk remains sweet and there is little or no trouble with the cheese, but when the hot weather arrives the usual complaints of overripe, gassy, or badly tainted milk, hot curing rooms, etc., are heard, and there are always more or less defects as a result.

I have been a firm advocate and believer in the grading of dairy products for market. It is the one system that should do more than anything else to improve quality. It is the fair and sensible way of encouraging better methods by all concerned when one receives a better price for better goods. Both buyer and consumer have a reasonable guarantee of the goods which they are purchasing, a guarantee which most of us look and ask for in nearly all other things. A system of grading cheese has been practically forced on us by war, and its results have been so satisfactory and reasonable that for the benefit of the whole industry of the future I trust its continuance may be adopted. In so far as I have been able to observe the methods and details of grading have not been unreasonable or of too high a standard, and I believe that the factorymen and makers have been fairly well treated and are well satisfied.

CHEESE EXPERIMENTS.—During the summer we continued experiments in the yield of cheese from milks containing different percentages of fat, and all of them confirmed again the fact that this is practically in direct proportion to the percentage of fat in the milk. A large collection of figures are always tiresome in a meeting of this kind, so I have not incorporated them in this report. I have, however, brought along four cheese manufactured at the Kingston Dairy School, by Mr. Zufelt, Mr. Cheetham, and myself, from milk testing from 5.3 per cent. fat down to 3.3 per cent. These you can see and examine at your convenience, and you will note that the cheese from 100 lbs. of 5.3 per cent. milk weighs nearly 5 lbs. more than the one made from the same quantity of 3.3 per cent. milk. Evidently the factorymen and patrons are gradually realizing the importance of this, for during the past season the number of factories voluntarily paying by test

increased from 86 to 95. It is interesting to note that 53 of these paid by straight fat, 38 used the fat plus 2 system, and one followed a fat plus 1 basis.

RENNET SUBSTITUTES.—This year we had to accept for use a much larger amount of rennet substitutes than before, and as more varieties were on the market it was necessary to test them in factory use to determine their uniformity and respective strengths. I understand that Mr. Barr is to give a detailed report on this subject, so I will not do more than to give two or three points that have been most evident in the factory work. Generally speaking, the use of pepsins have been fairly satisfactory, but under average conditions there is a larger loss in the whey. For the best results uniform acidity of the milk is most necessary from day to day, and a slightly lower temperature for the coagulation period. No doubt we will be forced to use rennet substitutes for some time, but they, too, are becoming more scarce, so we should do everything possible to conserve the rennet supply of our own country.

WHEY BUTTER.—It is interesting to note that the number of factories manufacturing whey butter has increased from 105 to 151 in the past year. Evidently factorymen have found that with the prevailing high prices of butter it is profitable to save this product. There is no doubt but that with the scarcity and need of fats for war and food purposes this should be saved where it can be done to advantage. The total make from May 1st to October 31st was 506,515 lbs.

MILKING MACHINES.—Owing to the demands for the army the question of labor has affected the dairy industry very greatly, and since the question of installing milking machines on the farms has become of more than usual interest we inquired into the number in use by patrons in Eastern Ontario. This number we found to be 625. The point that most interests cheese manufacture in their use is the condition of the milk, and we have found that when they are kept very clean they are all right, but in many cases they have not been properly cared for, and a great deal of badly tainted milk has been the result. This must be very carefully followed up by those interested in their use, for if they are to be of their full importance to the industry careless methods must be eliminated.

There never was a time in the history of the great industry which we represent that more effort should be made to work it to its capacity. When our instructors met for their annual course at the Dairy School last spring, all were asked to do their utmost to use their influence towards increasing the supply of milk, and the quality of the manufactured products. This has been well done, and it is evident that the patrons have been responding, for we find amongst other things that 803 new silos were erected, over 200 more than in 1916. Climatic conditions we, of course, cannot control, but the dairymen are, I think, entitled to full credit for their efforts. The prices, as we all know, have been considerable reward for these efforts and help greatly to stimulate production.

Dairymen must all appreciate the guarantee of the British Government to take all the Canadian make of cheese at a fixed price, and to be responsible for their safe transportation across the Atlantic. At one time it looked as though the market would be badly upset, as a few weeks' make of cheese soon swamps the market if they cannot be exported, but this was avoided, and the season closed with the highest price record in history.

There is just one point that I might mention in this connection of fixed prices. As you are aware, two milk condensing plants have been established in two of our best cheese districts, these have been able to offer the farmers higher prices than cheese factories for their milk. The question has been asked me many times

in our district meetings during the fall why the prices of cheese should be fixed and not other dairy products, many factorymen being obliged to meet heavy financial loss when their factories had to close. I simply mention this so that it may come before the Convention in a fair way and the members of the Commission may be given an opportunity to deal with it as they think best.

I cannot close without again expressing my appreciation of the co-operation and keen interest shown by the instructors during the season, by the patrons of the factories, and by those associated with the purchasing and shipping of the cheese and butter.

The opportunities of a coming season were never brighter, and I trust that all connected with the industry in any way will unite to work it to its capacity, in the interests of our country and the high object of purpose which we are striving for and endeavoring to honorably obtain.

Discussion following address of Mr. J. H. Scott, Official Provincial Butter Grader, Toronto. For address see Report of Western Dairyman's Association.

MR. SPENCER: What was the affect of that report going back to the creameries on the quality of the butter they manufactured? Did the creameries improve?

MR. SCOTT: That is my point. We were able in a great many cases to clear up these little difficulties that I have spoken of in the matter of coloring and salting by returning the score to the creameries. The buttermaker had that score in a few days from the time the butter was made, and if he noticed that his butter was defective in color or texture, he immediately began to try to find out the cause. One maker told me that the creamery instructors were handicapped with regard to the quality of the butter, because they did not know how it would score in a few days or few weeks. By this means we are able to return the score to the buttermaker in a few days, and they are able to take up these defective points and remedy them. This particular man told me that it had been the best thing that had ever happened, and that their buttermaker had got right up on his high horse all the time, and was anxious to get the report every time it came, to see how he was doing, and he tried to improve all the time.

MR. BARR: Have you any record of the percentage of butter that scored 94 per cent. and over, and have you a record of what that same butter was like two or three months afterwards?

MR. SCOTT: I have some figures of that kind, but I have not mentioned that in the report. Butter made from pasteurized cream by men who we could depend upon to do the work properly, has held its reputation. One particular creamery that I scored all season had 14 samples scattered all the way from the 1st of May to the end of September, and I scored them the day before yesterday. It was all made from pasteurized cream, at a temperature of not less than 50. They graded the cream, and the patrons were paid according to the grade they sent to the factory, and in no case was any of that butter scored more than one point lower than the score it received in June, and during the summer. And I must say that when I was scoring it I was playing "Scotch," because I was afraid I might score it higher than I did in June, and I did not want to do that because it is not customary for butter to improve by keeping. We have had some butter that scored 94 points, that has only scored 89 later on, having developed a fishy flavor.

Q.—What quantity of salt do you advise to be put into the butter?

MR. SCOTT: That is a disputed question. Our average percentage of salt runs from two to three per cent. Many imagine that it requires salt in the butter to make it keep, but I saw in a creamery the day before yesterday one sample that

was made in June where only one per cent. of salt was used in the manufacture, and it was splendid butter. It was scored by Mr. Herns up to 94.

Q.—Was there any culture used in the manufacture of that butter?

MR. SCOTT: No, no culture used. The question of salting is more or less a matter of taste.

MR. BARR: In reference to this particular point of pasteurizing the cream, I would like to tell you what I saw a year ago, if you will pardon me for mentioning Alberta at this time. I had the privilege of visiting the coast last year in February. The Alberta Government issues certificates only under the condition that the cream must be properly pasteurized. That is the only butter that they will put in as "Special." I was at the Calgary Convention in 1915, and a number of the merchants from Vancouver were there, who were making vigorous kicks about the quality of the Alberta butter coming out of storage in a poor condition and having a fishy flavor. When I went to the coast last January with Mr. Marker I visited all the warehouses in Vancouver and Victoria, and there was no man in any of these warehouses who could find a box of fishy-flavored butter from Alberta that had been marked "Special." That was a marvellous thing, that they could not find one box of fishy-flavored butter from any butter made from pasteurized cream, and that is what you want to do in Ontario. Make butter that will stay all right for four or five or six or seven or eight or nine months.

We had a conference in Regina in 1916 where the graders from Manitoba, Saskatchewan, and Alberta came together to get a uniform method of grading butter. They put butter from each Province on the table in order to test which was the best butter, and we could not come to any definite decision, and we finally said there is only one thing to do, and that is to put these samples in cold storage and keep them for six or seven months. I had them shipped to Montreal, and had the merchants go through them twice, and we found a 14 pound box of butter made in April in one of the Alberta creameries where the cream had been pasteurized to a temperature of 170, and Mr. Marker had made the statement at the Regina Convention that that butter would be found just as good next Christmas as it was then. That butter was kept in Montreal until Christmas, and then I shipped it back to Ottawa, and had some of it on my table when Mr. Marker was down last Christmas, and I asked him how he liked the butter, and he said, "It is something like Alberta butter."

I do not think there is any question about what you should do if you want to make butter that will keep. Pasteurize the cream to 160 and hold it there for ten or fifteen minutes, and there will be no question about that butter being all right if it is kept in cold storage for nine months.

MR. PUTNAM: I would like to say a word with reference to the grading of butter. Sir William Hearst, in speaking in Guelph last winter, stated that he did not hesitate in giving grants to any feature of agriculture if the same were recommended by the Commissioner of Agriculture and the Deputy Ministers, and it did not take us many minutes to convince him last winter that money should be granted for the grading of butter. He said, "How much money do you want?" We said, "We thought we should have \$80,000," and he said, "All right, if that is the sum necessary, we will grant it," and the Government granted \$80,000 for this work. That does not mean, of course, that we spent \$80,000 in the work, because it requires money to carry the butter until it is sold, and most of the money comes back again in the form of revenue.

The work has been a success, yet we are disappointed that a larger number of creameries did not take advantage of the system inaugurated last summer. It has

been stated by Mr. Scott, and emphasized by Mr. Barr, that in order to produce a keeping quality of butter it is necessary to pasteurize the cream. That has been stated by those in authority, and it has not been contradicted by any person, and you have the facts before you. Do you suppose the Government is justified in continuing to spend large amounts of money in carrying on a special feature of work if the men directly concerned do not carry into effect the strong unquestioned recommendations which have been made by those who are giving their whole time to this question. We must be consistent in this matter, and I think it is up to the creamerymen of this Province to state definitely that they are prepared to pasteurize their cream to a definite standard in so far as the manufacture of butter for storage purposes is concerned. That is a matter worthy of consideration by the creamery men, and if such action is taken then it would help the Government in their work, and they would continue to give you not only the services of Mr. Scott, but if necessary other men to carry this work on successfully.

HINTS ON BUTTERMAKING.

L. A. ZUFELT, SUPERINTENDENT DAIRY SCHOOL, KINGSTON.

The buttermakers of Ontario are laboring under a very serious handicap, and whilst they may never hope to make as high a quality of butter from gathered cream as can be produced in the whole milk creameries, yet, I believe it is possible for them to so improve their product that the distinction will be less marked. Commercially, butter is judged under three headings—flavor, color and texture. The qualities of color and texture are absolutely under the control of the maker, and defects in these are due to defects in the process of manufacture. The flavor is more or less determined by the quality of the cream over which the maker as yet has not been able to exercise much, if any control.

Defects in color may be described as speckled, mottled and streaked or wavy. Speckled butter is usually produced from thin cream which produces a small granule and washed with too cold a water. Mottles are the result of too cold wash water or insufficient working, or a combination of both. Streaked or wavy butter is obtained by not sufficient working or part of the butter lodging in the churn and not being worked until near the last.

Defects in texture may be described as soft, coarse and porous, greasy and salvy. Soft, coarse and porous butters are the result of too high temperatures, and when overworked produces a greasy appearance. Salviness is the result of overworking, especially at too low temperatures.

The color and texture of butter therefore, are influenced largely by the richness of the cream, temperatures of cream and wash water and length of time in working. *Richness of cream.* If cream has too high a percentage of fat and the churn is much over half full, we are liable to experience considerable difficulty, by the cream swelling and hanging up in the churn and when we do get butter it is very likely to be in large lumps, and difficult to thoroughly wash. The chances are that the butter will be rather soft to admit of proper working, and we will either have a coarse porous texture showing too much free moisture with a more or less mottled color, or if we work sufficiently to secure an even color we will have a soft and possibly a greasy texture with too high a moisture content. If the cream has too low a fat content we will also have

difficulties in churning as the fat globules being so far apart will not unite so readily and if we are churning at the usual temperature the small particles of butter are subject to so much friction by rubbing against each other as to seriously injure the grain. When the churning is finally completed the granules will be small and rounded, and the butter is likely to show a more or less speckled appearance with a sticky or greasy texture. Experience has taught us that cream having from 32 to 35 per cent. fat with the churn not too full gives the best average results, with a possible range of 30 to 37. As the average percentage of fat in the cream delivered to our creameries is only about 28 per cent., a considerable improvement could be brought about by encouraging the patrons to produce a richer cream.

TEMPERATURES. The lack of the employment of proper temperatures in churning, washing and working butter is perhaps more responsible for defective color and grain than is the richness of the cream. The proper churning temperature depends on the length of time the cream has been cooled to this temperature before churning, the richness of the cream, the amount placed in the churn and the nature or composition of the fat. Fat is influenced by changes in temperature but very slowly, so if the cream is cooled just before being churned, a lower temperature must be employed than if the cooling was done several hours previously. The same is true if it is found necessary to raise the temperature before churning as a correspondingly higher temperature must be used. As it is the common practice to churn on the day following the receipt of the cream, it is better to bring the cream to the proper churning temperature the evening previous, making due allowance for changes which may occur over night, otherwise, much valuable time will be lost in the morning, or the cream will be churned at whatever temperature it may be at, resulting in more or less guess work with unsatisfactory results. The object of washing butter is to remove the buttermilk and reduce the temperature so that the butter will have that firmness of body to admit of sufficient working to thoroughly incorporate the salt and moisture and produce a smooth, waxy body and grain with a uniform color. If sufficient water is used and the cream has been churned at the proper temperature, the temperature of the wash water should be 4 or 5 degrees lower than the cream. Mistakes are often made, especially when the churning temperature has been too high and the butter is soft by using water of too low a temperature. This only chills the outside of the butter, the centre not being affected, with the result that the butter will not be worked evenly and will have a mottled appearance when finished. In a case of this kind it is better to wash the butter with two waters with the first water only 4 or 5 degrees colder than the cream, and the second at the proper temperature to bring about the desired result. In order to properly work butter it must have a sufficient firmness without being hard, to admit the application of a moderate amount of pressure to force it through the workers. If the butter is too hard, too much friction is caused with a corresponding loss in texture and moisture, if too soft the butter in reality is not worked at all, only mixed, resulting in a soft porous loose grain with too much free moisture.

FLAVOR. Flavor which is the predominating quality of butter should be clean, mild and free of any objectionable odor. As previously stated the flavor of the butter is largely influenced by the quality of the cream as received from the patrons, and unless the maker can succeed in getting his patrons to deliver a better and sweeter cream we can hope for but little improvement in the present quality of our butter. We can bring about certain improvements by pasteurization,

but pasteurization will not overcome all the defects. It will improve the keeping qualities, but if the cream is old, sour and rancid the butter will have the same old rancid flavor as the cream. Whilst we should employ every means available in the manufacture of the butter to improve its quality, we must not overlook the fact that the greatest improvement can be brought about by securing a better cream supply. So long as the present method prevails of paying the same price for all creams, irrespective of quality we can never hope to produce a really high grade butter, even with the most up-to-date methods of manufacture.

In order to overcome the disadvantage of keeping old, over-ripe cream another twelve hours or more, thus further injuring the quality, some of our better equipped creameries have resorted to pasteurization, cooling and churning immediately. I believe Saskatchewan has adopted this method in nearly all of their creameries with satisfactory results. If care is taken in cooling the cream to a sufficiently low temperature before churning no excessive loss in the buttermilk will occur and undoubtedly the prevention of the deterioration which would take place in twelve hours in a cream already too old is a very desirable consideration.

In recapitulation I might state briefly that in order to improve the quality of Ontario butter we should direct our energies along the following lines:

1. Secure a sweeter and more frequent deliveries of cream.
2. Advocate the production of a 35 per cent. cream.
3. Forget all about a 16 per cent. moisture content and endeavor to make a smooth, firm, waxy butter of uniform color.
4. Use proper temperatures for churning and use sufficient pure water of low enough temperature to reduce the butter to the desired degree of firmness before working.
5. Instal pasteurizers and all other modern aids which will help improve the quality.
6. Get all the information you can from whatever source available and don't use guess work. Buttermaking is an exact science and does not admit of haphazard practices. Know what you want first, then use the methods to bring this about.

REPORT OF RESOLUTIONS COMMITTEE.

Your Committee on Resolutions beg to report as follows:

1. That we the members of this Association desire to express our appreciation of the kindness of the Mayor and citizens of the Town of Perth for the hearty reception given the members and delegates.
2. That the members of this Association wish to thank the speakers who have attended this convention and delivered very instructive addresses pertaining to the dairy industry and war time conditions of the present day.
3. That the thanks of this Association is hereby tendered to the Canadian Salt Company, of Windsor, through their General Manager, Mr. E. G. Henderson, for the very handsome badges presented by the company to the Association.
4. That recognizing the benefit derived from the dairy industry by the assistance received from the Ontario and Federal Department of Agriculture, we wish to express our thanks and appreciation of the work done by their Department.
5. That we the members of this Association desire to place on record our deepest regret for the absence of our Honorary President, Mr. Dargavel, who

has not been able to be with us on account of the illness of Mrs. Dargavel, and we wish to express our hope for her speedy recovery.

6. That in view of the Government by Order-in-Council having allowed the manufacture and sale of oleomargarine in Canada as a war time measure, we request that they carry out the restrictions under which it may be sold so as to protect as far as possible the producers of butter.

7. Moved by M. N. EMPEY, seconded by Mr. ROBERTSON, that the resolution passed yesterday by the E. D. A. be amended as follows:

"DEAR SIR,—Your attention is directed to the resolution embodied in this letter endorsed unanimously at Eastern Ontario Dairymen's Association held at Perth on January 10th and 11th, 1918.

"Kindly arrange to select a delegate at once from your factory. Further information may be secured from your District Director.

"We recommend that each factory remunerate their delegate for any expenses incurred.

"That, whereas, the price of cheese has been fixed at a level which makes milk for cheesemaking less profitable than milk disposed of in other ways; and,

"Whereas, this action has tended to discourage the production of milk for cheesemaking; and,

"Whereas, the closing of cheese factories caused by low price of cheese and competition from condenseries in turn discourages the production of pork; and,

"Whereas, cheese is one of the standard foods of the British people and an important part of the army ration,

"Be it resolved that we the Dairymen of Eastern Ontario assembled in session with a view to increased production at a reasonable profit to producer, demand prompt action by this Association and that a deputation including one or more delegates from each cheese factory in Eastern Ontario interview the Federal Minister of Agriculture and that the Director for each district notify the manager or owner of each cheese factory of this resolution and supply them with any further information." Carried.

8. We also recommend that a copy of this latter resolution be forwarded to the W. O. D. A. and the Quebec Dairymen's Association for their consideration and co-operation.

Moved by Mr. T. H. THOMPSON, seconded by Mr. EMPEY, that the resolutions as presented be adopted. Carried.

THE WORK OF THE CHEESE COMMISSION.

J. A. RUDDICK, DAIRY COMMISSIONER, OTTAWA.

Before proceeding to deal with the work of the Cheese Commission it may not be out of place to refer briefly to the situation which made the appointment of a Commission necessary or desirable, and to tell you something of the negotiations which led up to that consummation. It seems to be necessary to do this in order to clear up some misconceptions, which appear to be more or less prevalent, regarding the why and wherefore of the whole matter. It is evident that some of the dairymen have looked upon the appointment of the Commission as an act which had the effect of preventing the price of cheese from going as high as it would otherwise have done, and that they have, in consequence, been

losers to some indefinite extent. This is quite natural in view of all the talk about controlling prices of other food products.

It seems to me, however, that a mere statement of the facts, with regard to the cheese situation, will show that this is entirely an erroneous view, and that instead of being the means of preventing higher prices, the appointment of the Commission and the handling of the cheese through that channel has placed many millions of dollars in the pockets of Canadian producers in excess of what they would have received if the trade had been allowed to take its own course. In fact, it is hard to say what would have happened, because the export could not have been continued on the old lines at any price.

In March last, the Imperial Board of Trade, seeing shipping and financial difficulties looming up to stand in the way of the regular export trade, expressed a desire to purchase the entire exportable surplus of Canadian cheese of the season of 1917. With that end in view a representative of the Board in the person of Mr. Jas. McGowan was sent to Canada, and the Canadian Government was requested to nominate two commissioners to act with Mr. McGowan for the purpose of dealing with the whole question. The Minister of Agriculture nominated Mr. Jas. Alexander and myself as the Canadian members of the Commission.

The Board of Trade had purchased the entire output of New Zealand cheese for the season of 1916-17 at 19c. f.o.b. steamer, and was not, at first, inclined to pay more for our surplus of 1917. The New Zealand authorities say they were promised that no higher price would be paid. In view of the difference in the market value of Canadian and New Zealand cheese, and the further fact that values in all food products had risen during the interval, it did not seem reasonable that Canadian cheese should be sold at the same price as that paid for New Zealand cheese some months previously.

After negotiations the Imperial authorities finally authorized the Commission to offer 21¾c. f.o.b. steamer Montreal for the exportable surplus of Canadian cheese for the season of 1917. I am not at liberty to divulge all the steps that were taken on this side to secure a fair price for the cheese, or to bring the negotiations, which dragged along with exasperating delays, to a final and satisfactory conclusion. You will have to take my word for it that everything was done that was possible under the circumstances to protect the interests of the Canadian cheese producers. Proof of this assertion is found in the fact that the Ministry of Food has just concluded a further bargain with the New Zealand cheese factories to take their surplus output for the current season of 1917-18 at a price which will net them only between 19 and 19½c. per pound. The price named is 20c. f.o.b. steamer, but the factories pay the first three months' storage and insurance, receive 90 per cent. payment in 28 days, and allow 2½ per cent. on marked weights for shrinkage, which latter item alone works out at ½c. a pound.

Now as to the reasons or necessity for appointing a Cheese Commission and for taking the trade out of the usual export channels, my colleague, Mr. Alexander, will deal more particularly with that side of the question. He will tell you about some of the difficulties of the shipping situation owing to the submarine menace, the breakdown of exchange, and the loss thereon even if cheese could have been exported through the usual channels. As I have already said, there are some things about this business which, for obvious reasons, cannot yet be told, but I am sure that in the days to come the producers will realize that if it had not been for the appointment of the Cheese Commission to relieve the situation, the cheese industry of this country would have suffered a real disaster.

Of course, there is room for difference of opinion as to whether $21\frac{3}{4}$ c. f.o.b. Montreal was a fair price for the cheese, but I think it must be admitted that the purchaser of any article has a right to determine how much he is willing to pay. The British Board of Trade in this case simply took the place of the British merchant who in normal times imports the cheese, and it will hardly be disputed that the merchant has the right to determine the limit that he will pay in ordinary transactions.

Although reference is constantly being made in the press and elsewhere to what is termed the "fixed" price of cheese during the past season, I want to point out that there has been no "fixed" price for cheese in Canada. The British food authorities fixed a maximum price for the retail sale of cheese in the United Kingdom, but there has not been, nor is there at this moment, any regulation or other legal obstacle to prevent a Canadian cheese exporter or producer from selling his cheese at a higher price than the Commission is paying if he can get it, or from shipping it to the United Kingdom himself if he can secure the space. Of course I am aware that for all practical purposes these facilities do not exist, and that the factories are in a sense obliged to take the price which the Commission is paying, but the distinction between an actual "fixed" price and control and the manner in which business has been done through the Commission should not be overlooked.

The Commission, having been appointed, proceeded to formulate regulations to govern the acceptance of cheese. These regulations were made with a view of utilizing as far as possible the organization and facilities which already existed for the handling of the cheese trade. It was suggested in some quarters that the buyers should be required to pay not less than a certain price in the country. The Commission, however, knowing the history of the cheese trade, relied upon the competition between buyers to secure fair prices to producers, and the experience of the past season proves that their faith in that matter was well founded. As a matter of fact the price paid on the cheese boards was, in many instances, so high that there was not sufficient margin to pay freight, storage, cartage, cooperage, etc., and leave any profit to the dealer. An average of 21 c. at country points would have been a fair price for No. 1 grade. Producers can have no complaint on that score, and if the buyers did not make any money it was their own fault.

The Commission has recognized three grades of cheese, and probably the principal innovation in the handling of the season's output was the one by which a definite spread in value was fixed between No. 1 and the lower grades. It is, I suppose, generally known that $21\frac{3}{4}$ c. was paid only for No. 1 Grade, the prices for No. 2 and No. 3 being $21\frac{1}{4}$ c. and $20\frac{3}{4}$ c. respectively.

The buyers were required to grade the cheese themselves, and to offer them to the Commission in lots of 500 boxes of one grade and color. When this was done the Commission sent its own inspectors to examine them, and if any of the factory lots offered were not up to grade as represented they were struck off the list and others had to be substituted.

The chief inspector was a member of my own staff, Mr. Jos. Burgess, and those who know Mr. Burgess will have no difficulty in believing that the work was carefully and conscientiously performed. That such a radical departure from established practice as having a fixed reduction in price according to quality could be inaugurated without friction or complaint is at once a tribute to the ability, tact and good judgment of those who carried it out, and a recognition of the justice of the principle involved. Perhaps it helped somewhat to make this

policy acceptable that the Commission was as liberal as possible in the matter of quality. It was felt that under the circumstances there was no justification for being over critical.

The records of the Cheese Commission have made available certain information respecting the cheese trade which heretofore it has been impossible to obtain. The Commission has taken advantage of the opportunity thus afforded to collect some data which I now desire to lay before you. There are some facts concerning the relative quality and quantity of cheese produced in the different provinces and the different districts in these provinces which should be interesting and instructive. The rival claims of different districts for superiority in the matter of quality have been discussed for years without any real information on the subject. As all the cheese handled by the Commission were classified into three grades before being offered, and were all accepted on that basis, it was only a matter of compilation to determine the actual number of boxes of the different grades mentioned.

The following table shows the number of cheese handled by the Commission from June 1 to December 31, 1917, by provinces, with the percentage of different grades in each case.

TABLE I.—CLASSIFICATION OF CHEESE.

Province of Origin	Boxes	Grades (Percentages)		
		No. 1	No. 2	No. 3
Ontario	1,087,359	93.38	6.42	.20
Quebec	755,390	70.88	27.13	1.99
P. E. I.	17,488	90.85	9.00	.15
The Dominion	1,861,237	84.22	14.85	.93

The standards on which the classification was made are practically the same as those which have been observed in the trade for many years. Roughly speaking grade No. 1 may be described as including all cheese of good commercial value, well boxed, and having no objectionable flavors. Cheese were considered No. 2 grade if there were a percentage of samples off flavor, fruity, or unclean in flavor, acid, too much moisture, open, loose, gassy, cracked ends, soft rinds, bad finish, or too high for the boxes. One or more of these defects was sufficient to place the cheese in No. 2 grade. No. 3 grade consisted of cheese which were badly off flavor, very fruity or rancid, or very acid; that is to say, any cheese which had the defects of No. 2 grade only in a more pronounced degree.

The quantities produced in the different districts of Ontario and the relative standing of these districts in the matter of quality is shown in table II.

TABLE II.—ONTARIO CHEESE BY DISTRICTS.

District	Boxes	Grades (Percentages)		
		No. 1	No. 2	No. 3
Western Ontario	61,538	95.44	4.31	.25
Northern Ontario	3,253	44.44	51.15	4.41
Central Ontario	264,165	98.07	1.91	.02
Eastern Ontario	758,403	91.80	7.96	.24

In subdividing the Province—

“Western Ontario” includes all the territory west of Toronto.

“Northern Ontario” includes Nipissing, Sudbury and Algoma.

“Central Ontario” that part of the province east of Toronto, as far as Lennox and Addington.

“Eastern Ontario” begins with Frontenac and Renfrew Counties and extends to the Quebec border.

A further division might have been made by taking the Ottawa Valley as a separate district, and I regret to say that it would have made even a poorer showing than the whole of Eastern Ontario.

There is food for thought for the producers of Eastern Ontario in the rather poor showing which they make in comparison with other parts of the Province, with the exception of Northern Ontario, which is unimportant in the matter of quantity. Much might be said in this connection, because there must be some reason why the quality of the cheese in Eastern Ontario does not average as high as it does in Central Ontario, and there is no reason why it should not be as good. The actual monetary loss to the producers who received from $\frac{1}{2}$ to 1c. a pound below the ruling price is a very serious matter. Some may say that it is a matter of no moment to them as the cheesemaker pays the loss on quality. I understand that that vicious system of guaranteeing quality by the maker still prevails in some places—as one of the biggest curses that was ever fastened on the industry, but depend upon it, guarantee or no guarantee, the producer pays in the end for all defects in quality. But that is another subject and I do not propose to deal with it at this time. I leave this information respecting the different districts with those who are perhaps more directly concerned with it than I am.

It is rather an interesting study to follow the matter of quality into the different cheesemaking districts. For instance, in the Province of Quebec the average percentage of No. 2 cheese was 27.13, while in that far northern territory, known as the Lake St. John district, the newest, most outlying and isolated part of the Province, there was only 13 per cent. of No. 2 out of a total of over 98,000 boxes.

As a matter of passing interest, and for purposes of reference, I may mention that records of the Commission show that the average weight of cheese for the Dominion, and for the three provinces from which the cheese were received, is as follows:

TABLE III.—AVERAGE WEIGHT OF CHEESE.

	Lbs.
Dominion	83.67
Ontario	86.31
Quebec	80.13
Prince Edward Island	73.27

SIZE OF CHEESE.

The Commission has been strongly impressed with the advisability of standardizing the size of cheese made in Canada, particularly in the matter of diameter. The cheese hoops in use in the different factories vary in diameter from $14\frac{1}{2}$ to 16 inches. Either 15 inches or $15\frac{1}{2}$ is a suitable size, but there should be only one size in the country. I would be in favor of legislation prohibiting the use of any hoops except those of a standard size, giving the users of odd sizes a reasonable time to get new ones. The size of the bandage should also be regulated because a cheese expands to the size of the bandage after it is removed from the press.

It was found in many cases that the boxes were too large for the cheese. This defect was remedied at Montreal by "chinking" the space between the cheese and the side of the box with pieces of boards, all of which involves unnecessary cost. This slovenly manner of boxing cheese is due largely to lack of foresight and attention to detail in ordering boxes, but it will be increasingly difficult to secure boxes to fit the cheese properly as they are supplied more and more from central distributing points. A standard sized cheese permitting the manufacture of a standard box would help greatly in securing the desired improvement.

FIBRE CHEESE BOXES.

Several thousand cheese were shipped in the new fibre boxes. In order to get accurate and unbiased reports as to the condition of these boxes on arrival in the United Kingdom I arranged with the Cheese Commission to notify my office at Ottawa when cheese in fibre boxes were included in any shipment, and the cargo inspectors employed under my direction at ports in the United Kingdom were instructed to be on the lookout for them and to make special reports as to their condition, and to obtain views of the trade regarding them. These reports do not indicate that this package is a perfect one as manufactured at present. The covers are frequently torn loose and there is a tendency for the fibre to soften slightly, presumably by absorbing moisture from the cheese, and when this occurs the box is liable to be crushed when it has to stand the weight of a pile of 5 or 6 cheese. Quite a percentage of the boxes were reported as torn with the hooks used in handling. They will not stand that sort of usage. The patent cheese truck as used for wooden boxes also breaks or tears the fibre band, but this can be, and has been in some warehouses, remedied by an alteration in the truck which prevents the tearing. As I have already said, the fibre box is probably not a perfect box, but I think it is capable of improvement, and even at present it would appear as though it arrives in as good condition, if not better, on the average, than the ordinary wooden box.

There is always some criticism of anything new, no matter what its merits may be. Some of you will remember that when the Department was operating the cool cheese curing rooms, and began the practice of paraffining cheese, there was a great outcry in the trade and all sorts of bad results were predicted, and yet to-day a very large proportion of the cheese are paraffined by the men who then objected, and paraffining is now recognized as almost indispensable under certain conditions.

I am rather hopeful that the fibre box, possibly with some improvements, will solve the box problem of the future, providing the cheese are all made of one diameter as already advised. In many cases the fibre boxes were too large for the cheese and the percentage of damaged boxes was much greater in such cases. This lack of management which results in cheese being shipped from the factories in boxes which are either too large in diameter, or too low for the cheese, is inexcusable and it is coming to be recognized every day as a more serious defect. When there is a loss of $\frac{1}{2}$ a cent a pound, or 43 cents per box, on account of these defects—that is badly fitting boxes in one respect or another—surely it is time to provide a remedy. If a cheesemaker has the ordering of the boxes it would be a much more reasonable thing to charge him with any loss arising out of such a defect than it is to charge him for inferior quality in the cheese itself.

That it would be an advantage to have all factories registered and numbered became very evident in the course of handling the business during the past season. Many factories follow the sensible practice of branding the cheese with the name by which the factory is known, others use certain letters or numbers, or combinations of letters and numbers. In some cases the markings are changed from time to time, and there is more or less duplication of brands and markings. If the cheese from each factory bore a distinctive number, and complete lists of the registrations were published, it would greatly facilitate the tracing of particular lots of cheese to their proper origin.

The Federal law which was repealed by the Dairy Industry Act of 1914, provided for voluntary registration, but as less than half the factories ever applied for registration it fell short of the object aimed at and was therefore practically useless. As the cost of registration would be next to nothing I am of the opinion that it is advisable to ask the Federal Parliament to pass a compulsory Registration Act.

TOTAL EXPORTS SEASON, 1917.

I have already stated that the total cheese handled by the Commission up to December 31 was 1,860,237 boxes, or 155,662,463 pounds. I have taken the trouble to ascertain the exact number of boxes and the weight of the cheese of the 1917 crop which were exported through the regular channels before the Cheese Commission began operations, and I find that they total 123,909 boxes, weighing 10,656,174 pounds. There are probably 10 to 15 thousand cheese yet to be delivered to the Commission of the crop of 1917, so that the total exportable surplus for the year will be very close to 2,000,000 boxes, or 172,620,000 pounds, with a value of \$37,544,850, an increase of over \$4,000,000 as compared with 1916. These figures cover only the cheese shipped to the United Kingdom. There have been small shipments as usual, probably amounting to 1,000,000 pounds, to other countries. The unrevised figures of Trade and Navigation published by the Customs Department show that the exports to the United Kingdom for the 12 months ending March 31, 1917, which represents approximately the crop of 1916, amounted to 179,000,000 pounds. It would appear, therefore, as though our exports of cheese for 1917 will show a slight decrease as compared with 1916. If it is true that the home consumption has increased, as I am inclined to think it is, it is probable that the total production of cheese in Canada for 1917 is just about the same as it was in the previous year. When we consider the large quantities of milk which have been diverted from cheese factories into other channels, the showing is a very good one indeed. Our exports to the United Kingdom for the season of 1914 were only 135,000,000 pounds, so that we have increased our exports since the beginning of the war by 35 to 40 million pounds; or in other words, the value of the cheese output of 1917 was eight million dollars greater than it would have been if the production had been the same as in 1914.

Before concluding I am glad to offer a word of encouragement for a continued increase in the production of milk in this country, whether it is manufactured into cheese, butter or condensed milk, or used for direct consumption. The conditions which prevail in the dairy world as a result of the great war promise high prices for many years to come. The neutral countries of Europe, comprising Scandinavia, Holland and Switzerland, through shortage of feed, and induced by the high price being offered for live stock to be used as food in Germany and Austria, are rapidly depleting their herds, and it will be years before they will be built up again.

It seems to be generally conceded that the high price of animals and animal products will likely be maintained for a longer period after peace is declared than are the prices of other farm products. Of course I know all the difficulties which go with the shortage of labor on the farms, but the food situation is very grave, and we must all do the best we can. As a farmer's son I refuse to believe that the patriotism of the farmers of Canada is wholly a matter of dollars and cents, and for that reason I hope to see with favorable conditions a further increase in milk production during the coming season.

In conclusion I would like to say that the members of the Cheese Commission have been trying to give the very best possible service they know how to give, and without any remuneration of any kind. The greater part of the executive work falls on the shoulders of my colleague, Mr. Alexander, and Mr. McGowan while in Canada assisted in every possible way. As far as I am concerned, I think I ~~was~~ the ornamental member of the commission.

THE CHEESE COMMISSION.

JAMES ALEXANDER, CHAIRMAN.

I would like to say here that the dairymen certainly owe a debt of gratitude to the late Government for the assistance they gave the Commission, not only the Government at Ottawa, but Sir George Perley, the High Commissioner in London, who always responded and did the best he could. Sometimes it took a long time to get what we wanted, but it always came, and we owe Sir George Perley a great debt. The Commission was formed and the price arranged on the 4th of June. We met at an hotel in Montreal and arranged the rules to govern our operation. We were there until two o'clock in the morning, and the next day we met the trade in Montreal, including Mr. Ayer, at the Board of Trade, and put these rules before them to see what they thought about them. They were approved of. In the afternoon we saw the Overseas Transport Director, Mr. Harris, now Sir Arthur Harris. The next day we went to Brockville and saw the people there and returned home that night and got busy moving cheese. As you know, the factories were all blocked up with cheese and the warehouses in Montreal were all full of cheese, and there was no space to be had on the boats. We arranged with Mr. Harris for a little space, and we commenced allotting cheese, and during the next three weeks we moved about 300,000 cheese. It was not a very easy job, and we had to break the Sabbath and work at night, but we moved the cheese. Then the question came up as to pay, and that is a very important question, because my experience is that the dairymen always want to be paid for their cheese. At this time Mr. Ayer would not take cheese on consignment because he was filled to the door. We had no office at this time nor a telephone, not even an office boy, but we continued to move the cheese. We did not have a cheque printed to issue for cheese when they were on board the ship, and we did not have any money, and we had to go to Ottawa to see if they would loan us some money. Finally, Mr. Ruddick succeeded in getting \$2,000,000, but that only lasted a few days, and then we had to ask for \$2,000,000 more, and they gave us that. I do not know how Mr. Ruddick managed it. He must be quite a financier, for he succeeded in getting \$4,000,000. We still wanted more. The \$4,000,000 was supposed to be a temporary loan, and when we asked for more money they asked when it was going to be paid back, and

then the trouble commenced. However, we went on allotting and shipping cheese. We had expended the \$4,000,000 and had not a cent to repay it with, and we owed Mr. Ayer half a million dollars. Finally it was arranged through Sir Thomas White, and if it had not been for him this whole thing would have been a failure. He had enough to do to pay other bills, but he helped the cheese business by advancing us \$40,000,000. (Loud applause.) After that, of course, things were easy to finance, but then the shipping troubles commenced.

This business could not have been carried on along any other line. The financial and shipping arrangements had to be made, and there was absolutely no other way of carrying it on. Take, for instance, the question of exchange. Few people really understand what it means, but every transaction in the cheese business has always been carried on on what is called a 60-day documentary bill of exchange. The farmers say, "What have we to do with that?" And I say you have everything to do with it, and you always had everything to do with it, because if I get an order for a thousand boxes of cheese at 80s. the very first thing I would do would be to sit down and figure out what I could get for my exchange, what it would cost me for insurance and freight, and that fixes the price that I could pay the dairymen. The exchange governs the price. We arranged our pay this year in dollars and cents instead of in sterling and our price was fixed at 21¾c. f.o.b. the steamer. I am not in the confidence of the Finance Minister sufficiently to know how he negotiated his dollars into sterling, but we got our pay in dollars and cents, and the saving in that method of financing compared with pre-war times on our turn-over was \$1,461,000. That is the difference in the rate of exchange. That is a very important thing. I understand that the banks during these war times will not buy exchange at all in large quantities. If you talk to them about \$40,000,000 of exchange they would not touch it. If I went to them in pre-war times with a thousand pounds, they would give me so many dollars for it, and they ship it to England, and the result was that there was always a transfer of money to the other side, but now we do not want the money on the other side. We want it here. Every man wants his money where he can get at it without much trouble. In this case the Government loaned us the money in dollars and cents, and loaned the money to England. You must remember that England is not paying for any of these cheese. The whole thing is on credit. I do not know whether the Government have received any pay for all these cheese or not, but I know there must be a big balance in our favor. I believe England is paying the expenses of our army, and in that way there is a balancing of the account, but the balance is usually in our favor.

The British Board of Trade assume the entire war risk and insurance. I am not at liberty to tell you what our losses were, but I can say they were comparatively small. The war risk on the basis of 5½ per cent. shows a saving of \$2,219,000. Unless we were prepared to finance the cheese in the way that we did, England would never have paid that 5½ per cent. war risk, and you would have to have paid that, and you would also have had to pay the difference in the exchange.

Arranging for space on the steamships was a tremendous job. We held cheese ready for ships that never came at all. They may have gone some place else, or they may have been lost, some of them were lost. All this had to be done through the British Admiralty. We had no power to do anything. We were simply the servants of the British Board of Trade, and I wish you would get that idea into your heads, because we were not fixing prices, we were simply carrying out the

instructions, and we had no more power to load a ship or to load cheese than you had, unless we got it through the British Admiralty. To-day if you wanted to ship—I do not care what it is, a bag of beans or anything else—you could not do it unless you got an order from the British Admiralty. Some people thought the shipping could be carried on in the usual way, but that is not the case. There is no report of the incoming of these steamers. There is no report of their arrival. In pre-war time we always knew when a steamer came into the Straits, and we could keep track of her all up the Gulf, but now the whole thing is kept as secret as an oyster, and it has got to be. The steamers would turn up in Montreal some morning when we had been expecting them a week before or two weeks before, and then it would be a "Hurrah boys, get the cheese down at once." Sometimes we would allot 10,000 cheese to a certain boat, and would be told to send them down to the steamer, and when we got them down there they would tell us their instructions were to receive only 5,000 boxes. I should not be here to-day because the cheese trade is not over yet, and it has to be on the spot ready when the ship arrives. During the season of open navigation at Montreal, we loaded 138 ships, and the average per ship was 12,000 boxes. The least quantity put on any ship was 2,500 boxes, and the highest 36,000 boxes. Since the close of navigation, we have loaded 39 ships from winter ports, and the average number of boxes put on board was 4,300, the lowest 2,500, and the highest 7,000 boxes. We have now loaded and on the way to winter ports 58,500 cheese or 117 cars, and we have stock on hand not loaded, 44,500 cheese or 89 cars.

What made it possible for us to sell cheese or ship cheese? It was the British Navy—(great applause)—and every man should drop down on his knees and thank God that he is a British subject—(applause)—because if we were not protected by this navy you could talk about your fields and your acres and your cows and your pigs and everything else that you had, and it would not be worth anything. That is the whole truth.

Something has been said about next year's crop. I do not know anything about it, and, as far as I am concerned, I wish they would get some person else to take my place. You are asking for higher prices, and I do not blame you one bit, but has it occurred to you people that these millions that have been distributed for these cheese have been put up by somebody else, some other Canadian. I should think that every farmer, if he only had \$10, would invest it in war bonds and help the Government in that way. If it is only \$10 that your boy or your girl pays into a bond it all helps, and that is what is going to win the war. The people who have the longest purses are going to win this war, and by doing that you are doing your bit in the support trenches. Sometimes we get in the habit of grumbling and growling, but we must keep cheery during these times until the war is won, and after it is over then we can do our grumbling. (Applause.) The boys in the trenches are happy, although they are up to their knees in mud, and we think it is pretty tough to go out and milk the cows in the morning. And I know it is not very pleasant, because I have done it myself. As Mr. Ruddick told you, the Commissioners get nothing for their services. That nothing was given to me as chairman of the Commission, and I divided it in equal parts with the other two commissioners.

I want to thank Mr. Ayer and the other exporters for the assistance they gave the Commission. I do not think they are getting rich, but they always come up cheerfully and help us in every way they can, and we never ask them for an opinion that they do not give to us unselfishly. Although they thought when the

Commission was formed that there was going to be trouble, I do not think to-day there is any of that feeling.

MR. AYER: Not a bit.

MR. ALEXANDER: I think we should also thank the bankers who financed this cheese business up to the time we were able to get it to the steamer, because there was always a big overdraft at the bank. The factoryman has to have his pay, and I do not think there has been any delay in paying the factorymen this year.

There is one thing that we have got to look to this year. The Railway Commission have adopted a standard cheese box, and you will all have to get that box this year, otherwise any railway agent in the country is justified by his company in refusing to receive the cheese. Therefore, I think it is well to know that because the enforcement of that rule has been postponed twice, and I do not think it will be again postponed.

MR. SAMUEL WILSON, Scotch Line: I was just thinking, as a farmer, that we should be satisfied with the price we have been getting for the past year.

MR. ALEXANDER: Come right up here and let me shake your hand. It is a pleasure to see a satisfied farmer.

MR. WILSON: I was just going to say that in war times I do not think it is right for the farmer to press the Government to the last notch. They are being well paid for their cheese at the present time, and I think that every cent that we can deny ourselves we should do so. We should help the Government in every way, because by doing so, we are helping the boys in the trenches. (Applause.)

MR. ALEXANDER: There seems to be an impression that the Cheese Commission fixed the price, but we had nothing to do with it. The British Board of Trade fixed the price. We might argue with them about the price, but they are the people who fixed the price because they are the buyers. If you go out to buy a cow and offer a farmer \$75 for it, and he tells you he wants \$80, you can put your money back in your pocket and walk away, and the farmer can keep his cow. The British market is the only market we have for cheese. They control every ship on the sea, and I believe the shipping will be worse next year than it has been this year, because a great number are being lost, and we are not building them as fast as they are being lost. I believe shipping will be more congested next year than it was this year. You can thank heaven if there is a Cheese Commission next year to get your cheese over.

MR. A. E. McGRURER: The dairymen of Eastern Ontario do not wish this Commission to think that we are finding fault with them, but there are certain matters that we would like to have cleared up so that the dairymen will be better satisfied. We note that the price paid in Canada was 21¾c., and we have learned through the press that the price set in Great Britain is 32c., and we would like to know where the spread is, if the Commission are able to give us that information.

MR. ALEXANDER: I am not prepared to tell you what the Government rate of freight is. We did not pay any freight. The Government make that arrangement themselves, but I have paid and Mr. Ayer has paid the week before the Commission was formed \$3.00 for 100 pounds, and if you wanted to ship to-day you would have to pay \$7.00 for 100 pounds. Not only that, but if you could not get war risk insurance, no bank would buy your exchange. Now the war risk insurance is 1½c. a pound, and you have not yet touched the question of exchange. You might have to take \$4.44 for \$4.86 sovereign. When you talk about freight, that did not concern us, because the British Government are running their own show. They make a fixed price to the retailer in England, and we have nothing to do with that, but what we want

is to get a good price for our cheese here. We have no authority nor do we criticize the British people in what they are doing. They are perfectly capable of looking after their own business.

MR. W. N. EMPEY, Napanee: As a member of the Resolution Committee, I wish to defend myself by stating that we brought in that recommendation before the Convention, desiring to have this Commission use their influence to increase the price of cheese, knowing as we do that the price of food to feed our animals has advanced 50 per cent. since the price of cheese was fixed. Labor has also increased, and we know that the New Zealand people have received an increased price for their cheese.

MR. RUDDICK: No; they have not received an increased price.

MR. EMPEY: We know that the other food products have increased in price, and we think that it is only right that the Commission should use its influence to increase the price of cheese.

MR. ALEXANDER: Do you imagine for one moment that I would not have thrown my influence to get you more money? Is there a man in this room who thinks that we sat down there to cut and carve the price the farmers would receive? Mr. Ruddick was working like a Trojan for more money all the time. I am not trying to buy the cheese cheap. The more money the farmers get for their cheese, the better I am pleased.

MR. EMPEY: I think Mr. Alexander has misunderstood my remarks. The farmers certainly think that the Commission did well, and that the British Government did well by the farmers of Canada, and we were well satisfied last year with the price, but when you consider the price of other products, such as beef and pork, we think we should get more money for our cheese. We do not want Mr. Alexander to go away from this Convention and think that the farmers are not loyal. We are loyal and proud of our British connection. (Applause.)

MR. ALEXANDER: I know the farmers as well as any man in this country, because I have dealt with them for 40 years. I was brought up on a farm, and I used to know every farmer in this district, and I know there are no more loyal people in the world than the farmers. We have not got control over the beef and bacon. Our business has been to look after the cheese, and we have done the best we could, and will do the best we can again, but I really think now that I am a little hot under the collar that the resolution that was passed here was just a little premature. (Hear, hear.) I think you gentlemen should have waited, and had some explanation from the Commission before you bound it in and passed a resolution to go to Ottawa. We are quite willing that you should go to Ottawa, and that you should help in every way. As far as I am concerned, you will get fair treatment and a fair decision, but don't you think you were just a little premature in passing that resolution yesterday?

MR. T. A. THOMPSON, Almonte: Mr. Alexander is perfectly right in saying to this meeting that that resolution was premature. When it was brought forward yesterday I, as Secretary of this Association, did my best to have it postponed until to-day, when the Commission would be here. (Applause.) But at that time I did not have the backing of this meeting, and I had to submit to the majority, and the resolution was carried. I felt quite strong in the matter, and I thought the Dairymen of Eastern Ontario should not jump into the passing of a resolution like that without having heard from the Commission, and having the matter properly discussed and the different points explained by the Chief Commissioner. Although the motion was carried, and although the vote seemed unanimous, I noticed that

there were quite a few who did not vote. The motion was carried without much discussion and without having the consideration it should have had. I do not wish the Commission to think the farmers are dissatisfied. I think the dissatisfaction has been caused from the fact that during this summer some milk condenseries started in Eastern Ontario, and they have been paying more money for the milk than the butter and cheese factories could pay, and the milk supplied to the cities has increased in price, and that has all created some dissatisfaction. The Dairymen of Eastern Ontario want all the money they can get for their milk, but I do not think there is a man who will stand up in this hall and say that during the past season he did not make more money than he has ever made in his life out of his dairy herds if he intelligently followed the business.

MR. G. A. GILLESPIE, M.P.P., Peterboro': I favor the view taken by Mr. Thompson, but the resolution was passed yesterday in open meeting by the members who were here. After hearing the explanation of the Commission, I would move that in view of the situation as explained by the Commission this resolution be withdrawn. The butter factories were in a worse predicament than the cheese factories. I am running a butter factory, and the competition of the cheese factories was harder on the butter factories than in previous years. City milk trade demands must be met, and they pay more money for the milk than the cheese factories can pay, and I can say to you gentlemen here that the price of milk to-day in the cities has curtailed the consumption 25 per cent. I move that this resolution be withdrawn.

MR. W. A. EDWARDS, Aultville: I do not think there is a man in this hall who does not appreciate very much what has been done by the Commission. They have explained the situation very thoroughly. There is not a farmer in this country who is not just as patriotic as any other man in the country, but we were told last night by Dr. Hanna that one pound of cheese was equal to a pound and a half of bacon. This bacon has been exported to Europe and carried on the same vessels as cheese and protected by the same navy, and sells in Great Britain at from 40 to 52 cents a pound, and I see no reason why we should not receive at least 25c. a pound for our cheese. There is no doubt the condenseries have been the means of raising a great deal of trouble in connection with the cheese business, and I would ask if it is fair to deal with one branch of this dairy business on the open market and fix the price for another branch? Every child in the country can tell you what the price of cheese is, but is there any man in this hall who can tell what the condenseries get for their product? It seems to me that this matter is getting rank. We are here to demand a square deal. We do not want to be hoggish, but we are asking for a square deal, and we think something should be done. If this resolution is voted down, you will find that the result will not be a good one. (Applause.)

MR. RUDDICK: This gentleman does not thoroughly understand the situation with regard to condensed milk. There is a very great difference between the position of cheese and condensed milk. This whole complaint is founded on a false assumption, and that false assumption is that if the price of cheese were not fixed it would go as high as condensed milk or higher, but I want to tell you it would not do anything of the kind. There would be just as much difference between the rates of condensed milk to-day and cheese if the price of cheese had not been dealt with, because the demand for condensed milk is such that they cannot supply the demand. It is the same with milk in the cities. The people in the cities have got to have milk, and they will have it, no matter what the price is. The price of cheese is not controlled, but of course a deal was made with the British Board of Trade, and they purchased the cheese. The marketing of condensed milk and cheese

is different in a great many ways. The United Kingdom is the one market in the world for cheese. We sell 99 per cent. of our cheese to the United Kingdom, and the United Kingdom is the market for New Zealand cheese, but the market for condensed milk is not limited to England. We send 50 per cent. of it to the United States, and only one-third of it goes to the United Kingdom, and the balance goes to some 25 different countries. A child can see the difference between the two products. Some effort has been made to control this matter, but if I was a patron of a cheese factory and could get a higher price for my milk at a condensed milk factory, I would think my neighbor was adopting a dog-in-the-manger policy if he objected to me sending my milk to the condensery. The only person who has any right to object is the man who owns the cheese factory, because he loses his business. There is always an element of doubt in connection with condensed milk, because I do not believe the demand for condensed milk will continue after the war is over, and the diverting of the market from the cheese factories is for that reason a rather serious matter. If the condenseries come in and monopolize the territory they will close up the cheese factories. There is another consideration, and that is the by products that the farmer gets from the cheese factory that he does not get from the condenseries, and when you talk about returns from a condensed milk factory and from a cheese factory, you must take the by-products into consideration. They are worth a great deal more to-day than they were a few years ago, and they are worth much more than they are generally credited with being worth.

MR. EDWARDS: When I said I understood the situation, I meant that I understood what had been told us by the Cheese Commissioner, but I would like Mr. Ruddick to explain the difference between the price of cheese and bacon, and would also like to ask him what the Ontario Dairymen's Association stands for, and I would like to know if this Association was consulted in any way at the time the price was set for cheese last spring.

MR. EDSON BOARST, Northfield: I am interested in this matter as a farmer. We came here to discuss this matter in a proper spirit and to discuss it carefully and to counsel one with the other. We did not come here to criticize or find fault with the Commission. We know that everything in connection with the manufacture of cheese is going up, and how are we going to make anything out of this business this year if everything is going up and cheese remains at the same price, because last year we only made ends meet? We want to find out how we are going to get over the difficulty. We do not think we got a square deal from the Commission or from the Government. We do not care what the people get for the condensed milk so long as we get a square deal on the cheese question. If you let the farmers go home from this meeting with the idea that they are not going to get value for their product, they will say, "I can stay at home, and I won't feed my cows this spring. I am not going to work for fun, and we won't buy food to get the best results from our cows." If you want the best results you must give the cows something besides grass. The farmers will just run their cows on roughage this winter, and then turn them on the grass, and, if they do that, the boys at the front will be the first ones to suffer, and we are not so unpatriotic that we will not take them into consideration. We want to win this war. We are all British subjects, and if we are going to win the war we must work in unison.

MR. ALEXANDER: You may have a Commission next year and you may not. We do not want you to put anything on us that we have no control over. My advice to you is to go home and raise every thing you can. A man came into my office in Montreal not long ago and complained about the high price of food pro-

ducts, and if there is anything that gets my goat it is one of these grunTERS. I hate them. I said to him, "What are you doing?" He said, "I am not doing anything. I cannot get the kind of job I want." I said to him, "For God's sake, go out and buy an acre of land and produce something so that the rest of us won't have to support you. All you are doing is walking around the streets of Montreal looking for a soft job, and a great war is on." I am astonished to hear any man say at this meeting that the farmers would go home and refuse to produce milk. Any man who won't do everything he can to produce more until this war is over is a traitor to his country. (Applause.) One gentleman spoke about the price of cheese as compared with the price of bacon. We have no control over the bacon. He said one pound of cheese was worth two pounds of bacon. I have not much faith in that, because if cheese was so much more valuable than bacon, why is it that the people of Canada did not eat more cheese and less bacon? Why don't we all eat it? I do not know what the consumption of bacon is in this country, but I do know that the consumption of cheese is only 2 per cent. Why should we not all eat cheese and save our bacon, if cheese is the more valuable? At one time I was eating a beautiful orange, and a gentleman said to me, "There is not much to that, it is 95 per cent. water." I said to him, "Yes, but it is good water." So that when we commence to talk these scientific things and say that cheese is more valuable than bacon, we should practise them a little and eat more cheese.

MR. RUDDICK: When you begin to compare the price of bacon with the price of cheese, it is not what things cost that determine their value, it is how much the people in the Old Country need one thing more than another. The people in the Old Country have to consider what they need most, and what they can best do without, because they are doing without a lot of things. It is not a question of the relative cost of any product, but of what is needed most. If every man could be paid according to what the product cost, then you would have to pay one man twice as much as another man because it costs more for one man to produce an article than it does for others.

A MEMBER: I was aware when the matter was brought up yesterday that it was a little too premature, and I thought at the time it should have been delayed until to-day, but I think the resolution should stand. We have heard Mr. Alexander and Prof. Ruddick, and I think we should thank them for the work that they have done for the farmers of the Province of Ontario. (Applause.) We believe that the price that was fixed last spring of 21¼c. was a very fair price then, but since then prices of other articles have advanced, and the cost of production has advanced, and it costs more to produce a pound of cheese to-day than it did three months ago. I am a farmer, and I am not ashamed of it, and I am not ashamed of the part the farmers of Canada have taken during the past three years. We have produced everything we could, and when they asked us to produce more, we produced more. If the price of cheese remains next season what it does at the present time, you will not get the extra production that you are demanding. The energy of the farmer will not be given so much in that direction, but will go in other directions. They will produce wheat and peas and beans, and the volume of cheese will fall off. We are indebted to Mr. Alexander and Prof. Ruddick for the part they have taken, and we as dairymen feel very grateful, and I believe most of the dairymen of this section of the Province feel grateful to them. (Applause.) But I would feel that I was very much in the wrong, in fact I would feel that I was a traitor to my fellow farmers, if I asked to have that resolution withdrawn. We are in the support trenches and we should do our best. I worked for Mr. Alexander at one time, and

I always found him to be square and honorable, and I want Mr. Alexander and Mr. Ruddick to pass over the little thing that happened here yesterday, and I want them to use their influence with the powers that be for an increase in the price of dairy products.

MR. McLEOD: I quite agree with the remarks of the last speaker, and I think the resolution should stand. It only means that we are asking to have representatives attend at Ottawa and present to the Minister of Agriculture our views in this matter. I do not think there is anything wrong with that, and why should we withdraw the resolution of that kind. There have been complaints that we have not had any chance to place our views before anybody last year, and we simply want to place our views before the authorities this year, and see that the farmers get a just recompense for the work they have to do.

THE CHAIRMAN: It has been asked what this Dairymen's Association means, and I claim that it means the interest of the dairymen of this section of the Province. There seems to be an impression that if this resolution goes through we might in some way embarrass the Government. I do not think there is any intention of that kind. It should not be considered for one moment by any man that there is any intention to embarrass the Government or the Commissioners. The motion has been made to withdraw the resolution, but I do not think there is any seconder, and I think I will close the discussion.

DAIRY FARMERS AND THE WAR.

A. A. AYER, MONTREAL, QUE.

I have listened with pleasure to all the discussions and addresses concerning this great industry.

I think I detect a different tone and look from what I have been accustomed to in years gone by. The year has been a strenuous one; our kith and kin have been defending our liberty, our homes and all that makes life dear and sweet to us. The reason is evident. Morning, noon and night, we are made aware that Canada is at war. We cannot get away from it, hence I have chosen as my subject for a short address: "Men, Money and Food or Paying the Price."

All the information given in various reports and addresses here have been about the farm and dairy, or in other words, how to improve and increase its products. There are reasons such as never appealed to farmers in former years for an increase, and it is not merely a question of choice, it is now imperative. The big headlines in the newspapers, the conversation at home and in the street, the sermons in the churches, to which we may add the signs of mourning on every side, all give evidence of what concerns us most day by day. If we discuss better ways of making or marketing or increasing the make, or of paying for cheese and other dairy products or of the cost of labor and material, it is all in some way connected with and how to help to win the war.

Nearly all the people of the United States and Canada, whether they be dwellers in the country or in the cities, have until recently been so busy about their own affairs that they have not fully realized the great magnitude and everlasting importance of what is so far away. We Canadians, of course, have been longer in the war than the United States, but we have yet much to learn. Farmers and laborers, merchants and manufacturers, and all classes, must get

closer together; jealousy must cease, selfishness must be subdued, profits sacrificed and burdens borne if the nations are to be freed from the cruel iron hand of Germany, and our children are to be allowed to live under the practice of the Ten Commandments, which are as much the basis of all true living as when they were delivered from Mount Sinai thousands of years ago.

THE REQUISITES.

The three great requisites for winning the war are men, food and money. Men, who are willing to make the supreme sacrifice of their lives; all honor to them—no words can express what we owe to them. I do not need to dwell upon the subject of men, that is, soldiers, and their enlistment. That has been discussed and thrashed out to a finish during the past two or three months. Few stop to think about the money that is required in order to pay the men, to arm and to equip them and to furnish ammunition, food and sundries necessary to train and put the men on a fighting footing in France or elsewhere and to keep them there well and thoroughly fed and furnished for continuous fighting, especially now that Canada has duly declared: "We will stay in 'to the finish."

Where does the money come from for this enormous expenditure? Most people think that Canada obtains it all from Great Britain. This is not so. To a large extent, if not altogether, the money thus far has come from the surplus of our exports over our imports, as shown in the increased bank deposits, especially in farming sections—in other words, from the money derived from your cheese, bacon and other farm and dairy surplus productions, from grain of all kinds, from the mines, the forest and the sea and from munitions and other articles which have been manufactured and exported. Farmers and people in towns and cities by subscribing to war loans have furnished the Canadian Government money to pay for these equipments and munitions and to a large extent to pay for grain, cheese and other articles sent to Great Britain for the army, as well as for home consumption there.

Some idea of the increased wealth of Canada in the shape of farm products may be gained when we find that the field crops for 1917 are estimated at \$1,000,000,000. Total exports of Canadian products in 1915 were \$559,152,000. In twelve months ending 30th November, 1917, they were \$1,529,056,110. Of this amount farm produce in the same twelve months contributed in 1917, \$659,307,574. Then we note the bank time deposits had risen on December 1st last to \$1,008,657,874, and that current deposits had risen to December 1st last to \$538,869,362.

In view of these facts it is not so surprising that when the Dominion Finance Minister asked for \$150,000,000 on the security of Victory Bonds, that \$417,000,000 was subscribed. We must, however, keep in mind that the advanced figures in farm produce are mainly the result of increased prices, and not, we regret to say, from increased production. Let us hope that the year 1918 will see a largely increased production.

Big production will bring farmers as much or more money than the present limited production and big prices.

The greatest question to-day, "How to win the war" is how to increase production of food. It never paid better to feed cattle and hogs than it does now. I am opposed to milk, cream and condensed milk being exported except to Great Britain.

It has become a common saying that the war will be won by money, which means that the army which is best clothed and best supplied with ammunition and guns and every other major and minor requisite will fight the best. But this is not enough, the soldier must have food, and plenty of it, if he is to do his best, and he does get it—although there is severe shortage in England. It is the business and should be the pleasure of the farmers of Canada to increase the quantity of food by every effort in their power, thus “paying the price.”

If our farmers catch the spirit and the pleasure added to the duty of increased production (together with the increased profit) the result will be equal to winning a great battle. Will not this gathering of cheesemakers and dairymen go home and preach this gospel?

The large number of men taken from farm work, not simply in the United States and Canada, but the world over, will naturally cause a shortage of labor and thus of all kinds of food, unless some plan of speeding up and filling the gap takes place. I quite understand the difficulty and shortage of labor. The appeal I make is for sacrifice—not as great a sacrifice as those who have enlisted, but, the next to it. How many men with spare time are there in the small village or town near you, including the postmaster, storekeeper, blacksmith, shoemaker, retired farmers, and even the doctor and minister, who could do all the work they have at home during seeding and harvesting, when few farmers come to town, in two or three hours per day? Why not call a meeting and induce these men to help the surrounding farmers during seeding and harvesting. Most of them understand farming and can be trusted with the horses and seeders and mowing machines and harvesters. The villagers might like to devote their wages to a Red Cross fund, and the farmers might be willing to pay good wages if that was the purpose to which the money was to be devoted. Who among you will take up this plan?

THE MATTER OF PRICES.

We must look for and be prepared for a Government control of prices, perhaps not so severe as in England, but first, so that all may be treated alike, and second, so that prices may be kept within reason; but the Government must fix prices high enough so as to encourage every possible effort of the farmer to produce quantity and quality. It may be necessary to work longer hours than usual. I know what long hours mean. I will not ask any farmer to do what I have not done as a young man, working from daylight to dark, milking, planting, mowing, seeding, reaping or cutting hay and grain and corn by hand, for there were no machines in my young days.

MORE LIVE STOCK.

This association has to do with dairy products, mainly with cheese, of which the average price for 1917 was about \$2.00 per box over 1916 and \$6.50 per box over 1913. I hope the farmers, as a whole, are well satisfied with the prices obtained this year and that arrangements will be made for 1918 so that a uniform price (as high as possible compared with other food products) will be paid to all factories, according to quality, and that these exporting firms who have spent their lives in marketing cheese and who have warehouses and cold storages, which have been built at great cost, specially fitted up for that purpose, will receive reasonable compensation to cover dear labor and dearer everything for handling, cooling and shipping the cheese. War always produces high prices, and these

prices must be high enough to induce the farmers to put forth every possible effort to increase production; but there must be some limit to prices of everything, and it certainly will be very difficult for the Government to so adjust this, that all classes in the cities and in the country may be treated on an equitable basis.

The cheese factories in Eastern Ontario have for many years taken the lead in quantity as well as quality, not only of Canada, but of the world, and I hope the farmers will support the factories with larger herds of cows, so there may be increased production. May I suggest in order to increase food for war purposes quickly, that the farmers raise more hogs and calves, as they will without doubt sell for very high prices during and for some time after the war. Don't kill a calf until it is at least a month or two old, nor a hog until it weighs 200 lbs. Don't say, "It won't pay," but do it for patriotism and to win the war. Our agent in London writes that he walked a mile in vain trying to buy a pound of butter and that they seldom could obtain bacon at home.

The increased and uncertain prices for rennet, salt, bandage and boxes should be provided for the cheesemaker in some way, either by the farmers paying for these supplies or the maker being guaranteed against loss.

I hear some cheesemakers have failed in obtaining exemption on account of the small wages being paid. This is an argument for uniting factories where larger wages can be paid. Don't forget the cheesemaker. If the farmer works early and late, he naturally wants the best possible cash results, and he ought to have it, providing underneath this he feels that he is helping to win the war. The banks are advancing money to raise hogs. Raise them and so "pay the price."

If there was a better understanding of what it costs the farmer in time and money to produce food and at the same time the cost of distribution and of doing business generally in the cities, there would be less complaint about big profits. Few people realize that if there were no big firms, that the consumer in the big cities would pay higher prices. It costs firms that are doing a wholesale or exporting business of many million dollars annually much less per cent. or per pound than it does small firms, and especially those who have the expense of delivery. It costs many times more per pound to sell and deliver 500 pounds of butter divided among, say, 100 or 200 families, than it does to sell 5,000 pounds to one person. I do not need to tell the factoryman, for he knows that the cheese firms in Montreal worked this year without profit. We feel persuaded that the Cheese Commission did not expect it to work out that way and hope that their experience of this year will enable them to work out a fairer method for those who have expensive buildings, especially cooled for the handling of perishable products.

THE COST OF HANDLING.

It may not be amiss to point out a few of the items of cost per lb. from the time the cheese are shipped by the factory until they are delivered on board the steamer in Montreal harbor:

Railroad freight, from over 3-16c. to $\frac{3}{8}$ c. per lb.

Storage and insurance, $\frac{1}{8}$ c. per lb.

Interest until money is received back, $\frac{1}{8}$ c. per lb.

Cost of buying, invoicing, inspecting and remittance, 1-16c. per lb.

Total, $\frac{1}{2}$ c. to 11-16c. per lb.

The above is in addition to labor of receiving, coopering, shipping, cartage and port charges; nor does it include office expenses, taxes, city and provincial, nor dominion war taxes.

I take my hat off to the dairy farmers of Canada who are doing a very important part toward winning the war when they increase the production of cheese and butter and especially when they add to it hogs, calves and other by-products. When our soldier boys come back after victory is won, we shall with pride honor them.

Every farmer in Canada who has done his best to increase his crops and his dairy products and has worked early and late to this end should also have a badge of honor.

Farmers, cheesemakers and produce merchants will have difficulties not only during the war, but after the war. The man who does not have difficulties must certainly be standing still; but the busy man overcomes and marches forward and will help to win the war.

A customer sends the following New Year's greetings, which I pass on to you: "Let us resolve that in the New Year we shall make the most of time; that we shall be proud of each day's work and happy at the prospect of the labors of to-morrow; that we shall carry happiness with us into our business and show a joyous heart to our neighbors; that each day shall find new progress made towards the goal of our ambition; and that at the end of the twelve months before us, we shall find our homes better homes, our lives better lives, and ourselves better men."

MR. HENRY GLENDENNING: Mr. Ayer is one of the largest exporters at Montreal, and I would like to know what he thinks of oleomargarine.

MR. AYER: I am utterly opposed to oleomargarine because it interferes with dairy products. I have with me a large photograph that shows the effects of oleomargarine, and I think every person in Canada ought to know its effects upon children. It is not detrimental to grown up people. The Johns Hopkins University tried the experiment with it on animals, and they found the best animal to experiment with was a rat. They gave these rats all the food they required with the exception of fat, and they fed one group of rats with butter fat and the other with margarine. They were fed exactly the same quantity and the result was that one group of rats fed on oleomargarine were miserable poor little things and the others fed on butter fat grew up big, healthy looking rats. (Applause.) And they say it would have the same effect upon children, and the people of Canada should be warned against feeding children oleomargarine for that reason. I am opposed to oleomargarine or anything else coming into this country that will interfere with the dairy farmer, because I have been in business for over 50 years in dealing with farm products.

A MEMBER: We would like to know what was the cost per box of cheese of the work done by the Cheese Commission?

MR. ALEXANDER: Our expenses up to the present time have been .82 of a cent per box.

ADDRESS.

PROF. H. H. DEAN, ONTARIO AGRICULTURAL COLLEGE, GUELPH.

I have listened with a great deal of pleasure and interest to the discussion this afternoon as an impartial critic who is not interested one way or the other, and would you allow me to say in my judgment there were three points involved in the discussion this afternoon. The first was the work of the Cheese Commission

during the past year, and as far as I was able to judge from the remarks made, the people are well satisfied with the work of the Commission. (Applause.) And the Commission deserves a great deal of credit for the work which they were able to do under the difficulties that they had to contend with. The second point was that the farmers at the meeting yesterday passed a resolution calling the attention of the authorities to the fact that they thought cheese ought to be at a higher price for next year, and I do not think there was anything wrong in that. I think the farmers have a perfect right to call attention to that fact. The Cheese Commission are here and they have heard the farmers, and they know their views. Too often the farmer does not get a square deal in matters of this kind, and too often the men who are moulding the public opinion of this country throw the farmer down.

The third point was that this resolution should not have been introduced—it was not good form to introduce it at that time. The farmers as a rule do not give very much attention to form or red tape. I think you all feel better after having had this discussion, and I believe the discussion will do good. It will be better for the Cheese Commission, the cheese manufacturer and the dairy farmer. There is something in what one of the gentlemen said, that if the farmer is not going to be paid a proper price, he is not going to feed and milk his cows, and you cannot make him do so. We have fostered the cheese trade in this country for forty years or more, and it would be a national calamity to allow the cheese trade to go to the wall. The farmers of this country have a perfect right to express in this meeting and elsewhere their views with reference to the price of cheese for the coming year. They will never get more than they deserve for the long hours they work. On many farms in this country they have the eight hour system—eight hours before dinner and eight hours after—and up to the present time the farmers have not received just remuneration for the capital invested on their farms and for their labor. Up until the last two or three years, the farmers have not had the place they are entitled to in world matters. Too often the policies of this country have been dictated by men who did not work for the interest of the farmer, and until the farmers of this country prosper, we shall never get very far, because agriculture is the great industry of this Province of Ontario and the Dominion of Canada, and until the manufacturers and the professional men recognize that fact, Canada will not be able to take the position that she should in the world. I have little or no faith in these men who say that farmers are profiteers. If they have been able to make a little extra profit the past year, it does not begin to pay for the years and years that they have struggled on the farm trying to pay interest on their mortgages and trying to make a decent living and educate their children as they should. (Applause.) As far as I am concerned, I shall always use my influence in favor of giving the farmers a larger income than they have ever had in the past, so as to encourage the men to go on the farms of this country. People can make more money by living in the towns and the cities and until the farmer can make as much money on the farm as the people can make in the cities, you are not going to have the people remain on the farms.

The annual meetings of dairymen give an opportunity for those engaged in experimental and investigational work, to bring the results of their investigations before those who are most interested. Practical results are what is expected by the public from scientific investigators and this agrees with the aims of modern science. The great French Scientist, Louis Pasteur, said, "Nothing is more agreeable to a man who has made science his career, than to increase the number

of discoveries, but his cup of joy is full when the result of his observations is put to immediate practical test."

An experiment is something tried, the results of which are more or less uncertain. If we *know* what the results will be from a test or line of action, it is a waste of time to make the experiment. Because of this uncertainty in dairy work, experiments will always be necessary. For good results in dairy experimenting there is needed: A trained experimenter, who is able to note facts, record them accurately, and be able to draw therefrom conclusions in accordance with the facts; the experiment must be carefully considered and properly planned; finally there must be material and men to carry out the work, in which is included sufficient financial support.

The staff and equipment of the Dairy Department at the Ontario Agricultural College is occupied for about eight months of the year in teaching the Science and Practice of Dairying; this leaves four months for experimental and investigational work, out of which has to be taken from two to four weeks holidays, so that the time is limited for doing any large amount of research work, but a teacher of dairying will be all the better teacher after doing some original work each year. However, for the best and most valuable dairy research, a person should devote all his or her time to dairy problems, and not be required to dissipate energy in the class-room, which is always fatiguing, and saps both bodily vigor and mental energy.

The experimental work in dairying at the O. A. College, relates chiefly to three lines: The Dairy Farm, the Manufacture of Creamery Butter, and the Making of Cheese. We have no equipment for studying condensed milk and milk powder problems, and very little for investigating town and city milk and cream questions, though some work was done on this latter problem during the past year, in co-operation with the Bacteriological Department, on the temperature required for killing pathogenic germs in market milk, there having been some doubt expressed as to the effectiveness of present regulations with reference to pasteurized milk. The work on this point has been chiefly carried out in the United States and among European investigators. The regulations of the present Ontario Milk Act with reference to pasteurized and certified milk is based almost altogether on foreign researches. The work is not yet completed, but our own work appears to confirm that of United States investigations, showing that a temperature of 145 deg. F., for twenty to thirty minutes, is fatal to disease germs. However, we need to withhold final judgment until the tests are completed.

FARM BUTTERMAKING PROBLEMS.

I shall refer briefly to but two of those which were studied during the past year: Causes of Difficult Churning, and Causes of Variation in Weight of Print Dairy Butter.

The causes of difficult churning were studied as to the effects of: Breed of Cows, Feed of Cows, Lactation Period, Percentage of fat in or Richness of Cream, Temperature of the Cream at Time of Churning, Ripened vs. Sweet Cream, and Amount of Cream in the Churn. Briefly, the results were: Little or no difference was observed by churning separately the cream from three breeds of dairy cattle, Ayrshire, Holstein, and Jersey. Sometimes the cream from one breed took a long time to churn and sometimes from another breed. Neither was there very much difference in the losses of fat in skim-milk and buttermilk nor in the quality of the butter made, from the three breeds.

Cream from cows fed in the stable, churned as readily or even more so, than did cream from the same cows when on grass feed.

The cream from cows on stable feed milking for less than two months churned in 21 minutes; and from those milking two months and under six months on stable feed, the cream churned in 39 minutes, an increase in the time required for churning of eighteen minutes. On grass in September, the cream from the group, over two and under months milking took 52 minutes to churn, and a group milking over six months took 33 minutes to churn. Owing to scarcity of milk in the dairy herd, it was not possible to make further tests, but the results indicate more difficult churning of cream from cows advanced in lactation as compared with churning cream from fresh cows' milk. The work will be continued.

The churning tests as to the effects of richness, ripeness and temperature of cream were made in a No. 3 size barrel churn, having from two and one-half to three gallons of cream for each churning. The results were:

Kind of Cream	Lbs. cream churned	Per cent. fat in cream	Temp. cream	Minutes churning	Per cent. fat in buttermilk	Av. score of butter Max. 100
Rich.....	30	28	52°F	29	.14	95.75
Thin	30	16	56°F	38	.10	95.75
Thin and Warm.....	30	16	56°F	38	.10	95.75
Thin and Cold.....	30	16	52°F	54	.15	93.
Rich and Warm.....	30	28	52°F	29	.14	95.75
Rich and Cold.....	30	28	46°F	40	.07	95.5
Normal Temp.....	25	26	54°F	41	.35	95.
High Temp.....	25	26	69°F	12	2.40	93.5
Ripe Cream.....	32	26.5	50°F	30	.15	94.5
Sweet Cream	32	24	50°F	48	.70	94.5
Normal quantity in churn...	32	26.5	50°F	30	.15	94.5
Churn half full.....	63	26	50°F	70	.15	94.5

CONCLUSIONS.

1. A thin cream (16 per cent. fat) took a longer time to churn than did rich cream, or cream containing from 25 to 30 per cent. fat. A thin cold cream was still more difficult to churn, taking nearly double the time to churn as did normal cream at ordinary churning temperature.

2. A rich cream, too cold, also required a long time for churning but gave an exhaustive churning; that is, one with very little loss of fat in the buttermilk.

3. A high churning temperature caused the butter to come quickly, but caused an excessive loss of fat in the buttermilk, and the quality of the butter was poor.

4. A well-ripened cream churned in a shorter time and with less loss of fat in the buttermilk than did similar cream churned sweet. It is advisable on the farm to ripen cream, as a rule.

5. A small barrel churn filled half full of cream took 40 minutes longer to churn than did a churning of similar cream when the churn was but one-third full. The churning one-half full, rose four degrees in temperature after churning for thirty minutes. A churn with too much cream in it is a cause of difficult churning.

SHRINKAGE AND VARIATION IN WEIGHT OF FARM DAIRY PRINT BUTTER.

Print butter wrapped in parchment paper, or cheesecloth, both dry and wet, and held for two weeks in cold storage at a temperature of 35 deg. to 37 deg. F. lost in weight from .11 to .16 of an ounce. Similar lots held in a cellar at a temperature of 48 deg. to 55 deg. F. lost in weight from .3 to .4 of an ounce, in fourteen days. Print butter held for about two weeks would require to weigh from 16¼ to 16½ ounces when made and wrapped in damp parchment paper, in order that the package of butter might weigh full sixteen ounces when sold.

The more salt that is added to the butter at the time of making, the greater the shrinkage under similar conditions of storage. Butter containing less than one per cent. of salt, lost weight to the extent of 6/32 of an ounce per pound in two weeks, while similar butter, under similar conditions containing 3.2 per cent. salt lost 15/32 of an ounce; and butter with 7.2 per cent. salt lost 27/32 of an ounce per pound in fourteen days.

There are also considerable differences in weight of prints out of the same lot of butter and made by the same person using the same printer. These variations may run from 3/32 of an ounce to as much as 1 10/32 of an ounce more by packing the butter firmly into the printer as compared with loose printing. Different persons using the same printer on similar butter got variations of from 1/8 to 1/4 of an ounce in the weight of prints.

The results have a practical bearing on the printing of butter for sale, and show that care is needed in order that a customer may receive full sixteen ounces of butter when buying prints. They also indicate that those in authority should exercise some judgment before seizing short weight butter on the market. Unless it can be proved that fraud was intended, we doubt very much if it be lawful to confiscate butter belonging to a farm buttermaker when offered for sale on the markets of Ontario, because of short weight.

CONDITIONS AT THE TIME OF SEPARATING WHICH AFFECT THE PERCENTAGE OF FAT IN THE CREAM.

The tests of 1917 showed the following results:

1. An increase in the temperature of the milk from 70 deg. to 85 deg. and to 100 deg. F. at the time of separating, with four hand machines caused a decrease in the average percentage of fat in the cream from 43 to 41.6 to 39.5 respectively. Similar results were got with a belt power machine and with a steam turbine when the cream screws were set to give a cream testing from 30 to 40 per cent. fat. When the cream screw on the turbine machine was changed so as to produce a cream testing 50 per cent. fat, the temperature at which the milk was separated (80 deg. to 140 deg. F.) had little or no effect on the fat content of the cream.

2. When hand cream separators were run an average of six revolutions of the handle per minute below normal speed, the effect was to lessen the percentage of fat in the cream an average of 4.5 per cent., and to cause a greater loss of fat in the skim-milk. On the other hand, when the speed was increased six revolutions of the handle per minute above normal speed, the cream tested an average of six per cent. higher in fat. A fairly general effect of varying speed on a cream separator is, an increase of one per cent. fat in the cream for each increase of one revolution of the separator handle above normal and a corresponding increase in fat percentage for speed below normal. For uniform tests of cream the speed should be as uniformly normal as possible. Any variations in speed, cause a variation in the test of cream.

3. When a uniform quantity of either water or skim-milk is used for flushing the cream from a hand separator bowl, after creaming varying quantities or weights of milk, this will cause a variation in fat percentage of the cream. In tests with four makes of machines, and where one quart of warm water was used for flushing the bowls after separating 100 lbs. of milk and allowing all the flushing to run into the cream pail, the average percentage of fat in the cream was 42; under similar conditions, but separating only 50 lbs. milk, the average test of the cream was 41.1 per cent., a reduction of nearly one per cent.

Where one quart of skim-milk was used after separating 100 lbs., and then 50 lbs. whole milk, the cream tests were respectively 42.4 and 41.9 per cent. fat, a reduction of one-half per cent. fat in the cream.

While it is important to use sufficient liquid to flush the cream from the inside of the bowl, no more should be used than is necessary, and where all the flushing is allowed to go into the cream, it is a factor causing variation in the percentage of fat in the cream. Warm water is better than skim-milk for bowl-flushing, because it is about the same specific gravity as cream, hence displaces the cream more perfectly in the bowl.

CREAMERY BUTTER SOLIDS AND PRINTS.

The question of allowance for shrinkage on creamery solids and prints is an important one at the present time, owing to the high price of butter. The manufacturer naturally does not wish to give any more weight than is necessary, while the buyer insists on, and rightly so, receiving full weight of butter paid for. As much of the creamery "solids" goes into cold storage packed in 56 lb. boxes, where it is held for some time, the weight of butter necessary to place in each package in order to have it "hold out weight" when taken from storage, is a very important one.

Tests made during the season of 1917 show that the loss per box on pasteurized cream butter salted three per cent., with 1.45 per cent. in the finished butter, and held for two months at a temperature of about 35 deg. F., was but one-quarter of a pound and for three months was one-half pound. Raw cream butter salted six per cent. and having 2.78 per cent. salt in the finished butter, lost one-half pound per box in two months, and three-quarters of a pound in three months.

These results show that lightly salted butter made from pasteurized cream should hold out weight at the end of three months in storage if 56½ lbs. of butter are packed in the box when made. Heavily salted butters need more butter to hold their weight.

A number of creamerymen who cater to the printbutter trade, are now using machine printers. These are of varying styles. The chief advantages of machine printing over hand printing are, more rapid work and neater prints. So far as uniformity in weights of individual prints goes, there appears to be quite as much variation as when the hand printer is used. Tests were made on two 90-pound boxes cut into prints with a machine. In the first box cut, there were twelve prints exactly sixteen ounces in weight. The remainder of the prints varied from 9/32 of an ounce too light, to 24/32 of an ounce over a pound. In the other box, the variations were from 23/32 of an ounce too little, to 20/32 of an ounce over the required sixteen ounces. In this box there were but five prints of exact weight. If we allow 4/32 or 1/8 of an ounce as the maximum variation each way, there were 49 prints out of 90 in the first box outside the maximum, and 40 in the second box, or practically 50 per cent. of the prints were outside the limits set. In the first box. 63 prints were over, and 15 prints

were under 16 ozs. in weight, and 12 were exactly one pound. Of the second box, 43 were over, 40 were under, and 7 were exactly sixteen ounces.

If we take the totals of the plus and minus prints on the first box, we find the plus's, or weights of prints in excess of 16 oz., equals 516 thirty-second ounces, and the minus prints (under 16 oz.) equal 82. The difference between the plus's and minus's is $434/32$ or a little over thirteen ounces on ninety prints. In the second box the plus's equal 312 and the minus prints 225, a difference of $87/32$ or about 2.7 ounces. In this case, the plus and minus prints more nearly balance each other.

The foregoing may be regarded as preliminary tests and much more work is needed before definite conclusions may be drawn. However, it would seem as if we may expect considerable variation in weight of prints of butter made by machines. In the case of this particular machine, the prints along one side and on the bottom row were nearly always heavier than those cut in other parts of the box. This could be remedied by more even spacing of the wires used for cutting the butter.

CHEESE EXPERIMENTS.

These must necessarily be summarized briefly.

PASTEURIZED MILK. Tests made by using hydrochloric acid, peroxide of hydrogen, and a five per cent. lactic acid culture in pasteurized milk for cheese-making gave an increased yield of cheese, as compared with normal milk, of over nine pounds of cheese per 1,000 lbs. milk in some cases, but the quality of the cheese was not satisfactory. The use of an excessive lactic acid culture gave the best all-round results. We do not think it advisable or practicable to pasteurize milk for Cheddar cheesemaking with our present knowledge of the system.

HOME-MADE RENNET. While we were able to make a fairly good quality of rennet by soaking calves stomachs in the proportion of one stomach to one-half a gallon of brine for about a week, and were able to keep it for some time without spoiling, by adding one dram of either hydrochloric or acetic acid for each pound of water used in soaking the stomachs, the yield and quality of the cheese was slightly in favor of using commercial rennet, which produced about 1.5 lbs. more cheese per 1,000 lbs. milk, and the cheese scored about .7 point higher, while the whey averaged about one-tenth per cent. less fat, as compared with home-made rennet lots.

RENNET, PEPSIN, AND MIXTURES OF RENNET AND PEPSIN FOR COAGULATING MILK.

Without going into details the general results got by comparing rennet, pepsin, and mixtures of rennet and pepsin for coagulating milk were, less loss of fat in the whey by using rennet, and more cheese and a slightly better quality of cheese as compared with pepsin or mixtures of pepsin and rennet. This is shown in the following table which is the average of tests made during the season of 1917:

Coagulant	Lbs. Cheese per 1000 lbs. Milk	Avg. Score of Cheese. (Max. 100)
Rennet.....	88.6	92
Pepsin.....	86.8	91.6
Rennet and Pepsin.....	87.9	91.8

The general conclusion of all our work on this point is that if at all possible, use a good brand of commercial rennet for coagulating milk in cheese factories, but if this is not possible, pepsin, or preferably a mixture of pepsin and rennet may be used, but be sure that the pepsin solution has not lost its strength, as we find it tends to weaken very rapidly after holding for over three months.

A few tests made by developing more acid than usual on the milk before setting with pepsin indicate that this plan may be adopted in order to lessen the loss from using pepsin, but there is danger of injuring the quality of the cheese if this is carried too far. At present we should not advise increasing the acidity more than one point to one point and a half. For instance, if setting the vat of milk with rennet at .17 or .175 per cent. of acid, the acidity for pepsin coagulation should not be over .18 to .19 per cent. as measured with the milk acidimeter.

Tests were also made by setting vats of milk at 90 deg. F. with pepsin solutions, instead of the usual 86 deg. F. The results showed an increased yield of cheese by setting at the higher temperature, with apparently no very marked effect on the quality of the cheese. Three ounces of pepsin per 1,000 lbs. milk, setting at 90 deg. F., were quite as effective as 4 ounces of pepsin solution added to milk at 86 deg. F. Similar results were got by using 2½ oz. rennet per 1,000 lbs. milk set at 90 deg., as compared with using 3 oz. rennet at 86 deg. F. If the maker has control of the acid in the milk he can probably save considerable coagulating material, whether using rennet, pepsin, or a mixture of these by adopting a higher temperature than 86 deg.—say 88 deg. to 90 deg. F., for “settling the vat.”

PARAFFINING CHEESE. In order to save shrinkage on cheese which are held either in cold storage or in ordinary curing-rooms, it is becoming customary to dip the cheese in hot paraffine wax when made from three to ten days. This prevents loss by evaporation, and possibly also prevents chemical changes in the cheese which result in loss of weight during the curing, or more properly, the ripening of cheese. The following table shows the per cent. shrinkage on cheese weighing about 40 lbs. each—paraffined and not paraffined, held in cold storage at a temperature of about 38 deg. F., and in a curing-room which ranged from 60 deg. to 75 deg. F. during the months of June, July, August and September when the tests were made:

Per cent. Shrinkage in	Paraffined and Held in		Not Paraffined and Held in	
	Cold Storage % loss	Curing Room % loss	Cold Storage % loss	Curing Room % loss
One week.....	.27	.94	1.10	1.64
Two weeks.....	.57	1.40	1.37	2.19
One month.....	.57	1.57	3.02	3.84

The shrinkage on a cheese weighing 71¾ lbs., which was paraffined and held in cold storage, amounted to one-half of one per cent. for one month, and a little over three-quarters of one per cent. for two months. Similar cheese held in the ripening room lost in weight 1.7 per cent. in one month and but two per cent. in two months. Where cheese are held for any length of time, it will pay to coat them with paraffine. With a suitable dipping tank, the work is done very quickly and at small cost, though paraffine wax advanced to fifteen cents per pound in 1917 which is double the price a few years ago.

SECRETARY'S REPORT, 1917.

T. A. THOMPSON, ALMONTE.

As Secretary of the Dairymen's Association of Eastern Ontario it affords me very much pleasure to submit my report for the year 1917.

The past season has been a most profitable one for the dairymen of Eastern Ontario. Although the cost of production has been increased by the advance in the price of labor, of farm machinery and of dairy supplies and equipment, yet the increased expenditure has been balanced by the prices received for dairy products during the past season, and yet the fact remains that when their food value is taken into consideration, milk, butter and cheese are the cheapest human foods on the market to-day.

During the past season the price of butter and cheese has been the highest ever known in this country and yet the patrons delivering milk at creameries and cheese factories received only an average of about five cents a quart for their milk, from which the cost of production, of delivering and of manufacturing had to be deducted before the producer could figure up his profits.

A great deal of dissatisfaction has been caused among the patrons of creameries and cheese factories on account of the comparatively high prices paid for milk delivered at the condenseries, and the prices charged for milk delivered in the towns and cities being altogether out of proportion to what is paid for milk delivered at creameries and cheese factories. The present war conditions are responsible for creating an abnormal demand for condensed milk, and it appears that no limit has been set upon the price at which it may be sold such as has been placed upon the price of cheese.

During the past year the manufacture and importation of oleomargarine has been permitted in Canada, although it was vigorously opposed by the dairymen.

The dairy exhibit held in connection with this Convention has been a marked success and clearly demonstrated that a steady improvement is taking place in the quality of butter and cheese manufactured in Eastern Ontario, thanks to Mr. Publow and his staff of efficient instructors.

The district dairy meetings were held as usual and were generally well attended although the turmoil and excitement of the Federal election which was being carried on at the same time detracted in some cases from the attendance.

The gratitude of the dairymen is due to the Dominion Government for the promptness with which they relieved the congested condition of the cheese market early in the season by arranging with the British Government to purchase our cheese at Montreal, and also for the appointment of a Dairy Commission which has amply justified its existence.

The Directors appreciate very much the assistance which they received from the Ontario Department of Agriculture and wish to express their gratitude therefor.

Personally, I wish to tender my sincere thanks to the President and Board of Directors for their courtesy and forbearance and their willingness at all times to assist me in the discharge of my duties as Secretary.

ADDRESS.

F. W. HALL, M.L.A., PERTH.

The fact that you are celebrating your 41st Convention speaks for itself. The age of this Association shows the great importance of the Association to the Province of Ontario. If you had not been of importance, you would have been out of existence long ago, and any association that has been in existence for almost half a century must have been doing good work. I know that you have been showing greater progress from year to year. You will not object if I remind you of the fact that bigger responsibilities than ever rest upon your shoulders for the year 1918, and that applies to every man, woman, and child in the British Empire. You might ask what has the war got to do with the Convention held under the auspices of the Dairymen's Association of Eastern Ontario. I think there is not a group of men in the Province of Ontario who can do more towards helping the people of this Province to more thoroughly carry out their duty towards the Empire in this great struggle than this Association. This Association did a great deal last year, but they must do more in the coming year. It is not only necessary that the men of this country who wear khaki uniform should serve, but we can serve our country in overalls just as well as the men who serve in the trenches. I do not believe the civil population has awakened to that fact, and I believe that if the civil population of the Allied nations had taken this war to heart and had been serious with their work, and had worked as hard as the soldiers had worked, this war would have been over long ago. We have many people who are fond of criticizing. I have heard men say that they would like to have a hand at running the nation, and I would like these very men to make a start with their own households. We forget the big responsibilities resting upon us, and I think the responsibility rests more upon the civil population than upon the soldiers at the front. We have men in France, and we are going to have more men in France, but what is the use of these men without reinforcements? An army that is not reinforced is a defeated army, and, in order to get these reinforcements, they have to take you and me, and we must throw aside for the time being the manufacture of luxuries, and turn our attention to the manufacture of reinforcements, and we have to look to everything that is going to help the men at the front. I do not think there are any men in the country who are doing more in that regard than the members of the Dairymen's Association. The production of cheese products can be doubled in 1918, if you men will become serious. Some people say there is no danger of a famine, and there may not be any danger of famine, but there is danger of hunger, and we do not want to get into that stage. Some people say that the enemy is going to starve, but there is no danger of the enemy starving, because the enemy has large tracts of land which he has been cultivating better than we have been cultivating the same area in this country.

There is not the slightest danger of any of the enemy nations being starved. There is more danger of our being starved and going hungry, and the eyes of the Allies are to-day upon Canada to help out in this great matter of production, and this applies not only to the farmer, but to the town and city folks as well. Last year, through the District Agricultural Representatives of the Ontario Department of Agriculture, the towns were organized into growing vegetables on town lots, and the results were splendid. In the cities results were tremendous. In the City of Toronto some \$50,000 worth of vegetables were produced, and the City of Ottawa

made a splendid showing, and all the small towns produced in a large way. This year the labor question is going to be more troublesome than ever before, and the men in the towns and cities will have to help out on the farm work more than ever before, and the population of this Dominion will have to get serious during 1918.

The wealth of this country has increased very much, and we must turn that prosperity to a good purpose. We have subscribed to all the war loans that have been submitted to us. We over-subscribed the Victory Loan. It was a success beyond the dreams of the administrators of this country, and when another War Loan is put before the people it will be met by the people with the same spirit and over-subscribed in the same way. We must have more than that. We must have good heart in the work, so that our production can be increased. What are we fighting for? You and I at home are fighting just as much as the men in the trenches for those principles which belong to civilized nations, those principles which mean humanity, and it is for us to fight on and win out so that these principles may be handed down to those who come after us. We are fighting for the rising generation, who are to enjoy this great heritage that has been given us.

THE DAIRY FARMER, CHEESEMAKER, AND BUTTERMAKER AS FOOD MANUFACTURERS.

PROF. H. H. DEAN, O.A.C., GUELPH.

The chief food manufactured on a dairy farm is milk. This is a perfect food, especially for children. It contains the substances known as "vitamines," which are essential for animal growth. The young animal, man, cannot develop properly without milk, supplied by its own mother; or, in these modern times, largely by the dairy cow.

Owing to the fact that milk is easily contaminated, the only *safe* milk, other than the grades known as "certified" or "inspected," is pasteurized. By the term pasteurized milk, we understand milk which has been heated to between 140° and 150°F., held at this temperature for twenty to thirty minutes, then cooled to 45°F. or lower and kept at that temperature until delivered to the consumer. For the ordinary trade, this means that the raw milk from the farm would have to be delivered at some plant in or near the place of distribution, where the raw milk may be properly treated so as to insure a healthful milk supply to the city consumer.

The consumer is inclined to grumble at the high price he is asked to pay for milk, but, compared with the price paid for other foods, good pure milk is cheap at twelve to fifteen cents a quart. A family of five persons should use three quarts of milk daily before purchasing any meat, at present prices of beef and bacon.

Farm dairy butter has received a serious blow by the sale of oleomargarine, or imitation butter. While it is true that good butter is, and can be made on the farm and every farmer should see that all butter made on the farm is of number one quality, it is also true that much poor butter is made in the farm dairies of Ontario. The manufacture of second grade butter can no longer be profitably carried on in connection with the dairy farm. Unless first grade butter can be made, and for which there is a good market, it would be much better to send the cream to a creamery, there to be manufactured into creamery butter.

It is possible, and under certain conditions profitable, to make cheese on the farm, especially soft and fancy varieties, including skimmilk and buttermilk cheese, but, as a rule, Canadian cheese are best manufactured in factories, under

the charge of skilful makers. However, in those districts where factory cheese are not obtainable for a farmer's own use, then a sufficient quantity should be made on the farm for the family table. This can be done with simple utensils and at small labor. Every dairy farmer and his family ought to be large consumers of cheese, either factory or home-made.

As a side-line of the dairy farm, the manufacture of bacon, or the raw material, hogs, is an important adjunct. With hogs selling around \$19 to \$20 per hundredweight alive, the dairy by-products, skimmilk, buttermilk, and whey can be profitably made into pork. None should be wasted on the farm or at the factory.

CHEESE A MUSCLE-BUILDER.

In Eastern Ontario no one branch of agriculture is so important as the production of milk, and its manufacture into Canadian Cheddar cheese. The workingman, particularly, finds in cheese a cheap source of protein and energy. It is estimated that one pound of cheese is equal to from one-and-a-half to two pounds of meat. The retail price of cheese per pound is usually less than that of meat, hence cheese is a "good buy" under present conditions. In this connection, I should like to say that I am in full sympathy with the resolution passed yesterday, favoring a delegation going to Ottawa to lay before the Minister of Agriculture the need of higher prices for cheese in 1918 than was paid in 1917. This method of carrying matters of importance direct to the people's representatives is now a recognised method of procedure in this country, and I feel sure that the Minister will give sympathetic hearing to what the cheesemen have to say on the question of prices for the present year. Without desiring to dictate in the matter, it is not too much to say that considering the extra cost of milk production, and of cheese manufacture, and also comparing the price of other similar food products, that a price of twenty-five cents per pound of No. 1 grade cheese, f.o.b. steamer, Montreal, is not too much to ask for the 1918 cheese crop. Dairymen are not selfish, but they do like to receive fair returns for capital invested in farms and factories, and for the labor spent in producing milk and manufacturing cheese.

The chief advantages of cheese as a food are: There is practically no waste in cheese; it does not require labor and expensive fuel for cooking before it can be eaten; it is partially predigested through the action of rennet or pepsin if the cheese be well-ripened; it balances a ration of food which contains an undue proportion of heat formers which is all too common in human dietaries. However, purchasers of cheese should insist on well-ripened, good-flavored, mellow-textured cheese, and not be willing to accept "cull" cheese except at a very low price. Too often our best cheese are exported and inferior cheese are sold for local consumption. Cheese should be eaten with fruit, such as apple-sauce. A family of five persons should consume not less than one pound of cheese daily, preferably for the evening meal, instead of meat. I have no hesitation in saying that the prize cheese sold to-day, and those cheese which did not receive a prize, were not bid up to their real food value. The town of Perth could easily have absorbed all these excellent cheese at 25 cents per pound wholesale, and consumers would get a "bargain" at 30 cents per pound.

BUTTER A HEAT-PRODUCER AND BRAIN-OILER.

Milk-fat, when churned, is changed into butter-fat, and thus becomes a valuable source of body heat, a special nourisher of the finer parts of the body, and

particularly a means of supplying oil for the busy brain. Before a man can act wisely and well he must think clearly. Before he can think clearly the brain must be properly fed and be well oiled. Such delicate and complicated machinery is found nowhere else in nature as is found in the human brain. When the brain goes wrong, everything is wrong with the man to whom it belongs. Knowing these facts, we wonder that people are willing to buy a so-called substitute for butter in the form of oleomargarine because it is a few cents cheaper than butter. In all probability, for every ten cents saved on butter, ten times this amount will be paid in doctors' and nurses' bills. Nature never intended mankind to use cottonseed oil or similar products as a food for humans. The lower animals, with much stronger digestive apparatus than has man, find it extremely difficult to digest and assimilate the by-products of cotton.

The best and safest kind of butter is that made from pasteurized cream. Especially is this true of butter which is made to be held for some time in cold-storage, or elsewhere, before using. Butter made from raw cream is very likely to go off in flavor, if not consumed within one month after making. If Canadians are to be able to do heavy and effective brain work they need to eat plenty of good butter, and to leave butter substitutes alone. If we wish to degenerate into Class B or lower, leaving butter out of our rations is one sure way to accomplish this.

Two other food products of the dairy may be briefly mentioned, namely, condensed and powder milk. These products are here to stay. The cheese and butter manufacturers may as well make up their minds that the competition from these factories must be met in some form. The big advantage which these manufacturers have, is that they utilize *all* of the solids of milk, whereas the butter manufacturer recovers but one-fourth to one-third, and the cheesemaker about one-half. While it is true that the by-products in the making of butter and cheese are valuable, they cannot compete with a branch of the industry which utilizes all of the milk solids for direct human consumption, and we may expect milk condenseries and milk powder factories to increase and a corresponding decrease in creameries and cheeseries in Ontario.

ADDRESS.

W. J. BELL, B.S.A., PRINCIPAL OF THE KEMPTVILLE AGRICULTURAL SCHOOL.

I want this evening to introduce to you the Kemptville Agricultural School. It is only a young institution, and I have been looking after it since September 1st last.

Considerable has been said to-night as to the need of agricultural instruction and of the farmers of Ontario taking the place that they ought to in this progressive world. If the sons and daughters of the farmers of Ontario are to take their proper place they must be well educated. The men who stood up in the audience this afternoon and discussed problems so keenly were men who had been well educated, and in order to properly look after your own business it is necessary that you should have a good education. The men in the cities and towns have better academic training than the farmer has been able to give his boys and girls, and that is why I am in Eastern Ontario to start an Agricultural School at Kemptville.

We have a very great college of agriculture in Guelph, but only a small percentage of the students who attend that college come from the Eastern part of the Province, and that is not as it ought to be. That being the case, it has been thought

to start a school of agriculture in the Eastern end of the Province to accommodate the boys and girls of this section. We intend to give a two years' course in agriculture, so as to be able to send the boys and girls back to the farm in a better condition for their life's work, and the instruction that will be given at the Kemptville School will not only be a scientific training, but to a very great extent a practical training in the business of farming. We will be able to put on a course that will be practical in every respect. That is one of the things that I am going to pay a great deal of attention to, the practical work on a farm. We will not only make the boys and girls better farmers, but better citizens, because by rubbing up against their associates at college they will be made far better men than they would have been if they had not had that opportunity.

One of the drawbacks to young men on the farm is that they do not have the opportunity of meeting their fellows and dealing with them in a business way. We will also render every assistance we can to the District Representatives. I have been asked to assist a number of District Representatives in their work during February, and we will be able to send from Kemptville men who will be capable of going from one county to the other and assist the District Representatives and the farmers.

We not only have a school, but we have a farm which is exceedingly well located near the centre of the eastern end of the Province. It lies between the Town of Kemptville and the Kemptville Junction. We have 100 acres on each side of the Ottawa and Prescott highway. It is a fairly good farm. There are far better farms in this district, but it would not be a great deal of credit to those in charge of the place if we took a real first-class place and undertook to demonstrate farming on such a farm. We have only a very ordinary place, and we do not intend to make it strictly an experimental farm or a demonstration farm. What we intend to do with it is to make it a farm that the farmers will be glad to see. Make it a farm on which we can practise what we preach in the school.

Sometimes fault is found with a Government institution if they buy something real good. I will never pay more than the actual value of any stock that I go out to buy, but I want really choice stock. The farmers sometimes say we can get good stock because we have the money behind us, and that is true, but if we get poor stuff, then of course they laugh at us and say we do not know how to buy. We are going to keep Holsteins and Ayrshires, and we will possibly have some Jerseys. We have only 200 acres, and we cannot keep any more than 75 head, or 30 head of milking cows, and I am going to get cows that will test well.

I heard of a test that was made in one section of Ontario recently of over 8,000 cows, and 10 per cent. or 800 of them tested less than 3 per cent.; 14 per cent. of them tested exactly 3 per cent. I want to get away from cows of that kind. I purchased an exceedingly choice cow not long ago and paid \$500 for her, and I thought I got her cheap. I also got a cow that gave less milk for \$350. In one year the cheaper cow gave 100 pounds more butter than the other cow, but because she gave 1,000 pounds less milk, and because she was not the daughter of a Canadian champion she brought \$150 less. That, of course, is not a right state of affairs, but we should pay strict attention to the amount of butter in the milk given by the cows on our farms.

We have purchased some Yorkshire sows as good as any that could possibly be bred, and we are going to do our share in connection with the hog campaign.

There are several good breeds of heavy horses, but I like the Clydesdale, and we have some fairly good horses at the farm. Recently I was able to buy two young registered brood mares. They are choice, and I did a rather bold stroke in ex-

hibiting them at the Winter Fair at Guelph, and secured second prize. I am going to continue in the show business, because I think we have been slack in the Province of Ontario in Government institutions not being allowed to compete in the show ring. I do not think a Government institution should take a prize, but I think their stock ought to have an opportunity of being placed where it ought to be placed. One of my mares took the second prize at Guelph, and the man who secured third prize received the second prize money.

One thing I am going to do on the farm is to find out if the 25 acres of rough shaley sand pasture land can be reclaimed. We have what they call the King Dover weed, and we want to eradicate it if possible, and I am going to try it next year, and I will let you know how I succeed. They say that is one of the things they are anxious to find out in Eastern Ontario, and we have 25 acres, and we are going to go ahead with it and find out what can be done with it.

We hope to establish a Horse Breeders' Club in the north end of Grenville County. After this war is over, there is going to be a great demand for live stock in Europe and horses will command a splendid price, and we are going to try and encourage the farmers in the breeding of horses and other live stock, and we are going to make the farm centre for the distribution of pure-bred seed and live stock.

I have arranged with a man who has control of a great number of farms where they breed pure-bred stock to get the surplus stock and distribute it, especially real choice sires. We are going to have these sires distributed at a reasonable figure throughout the eastern part of Ontario, and I think with your co-operation that can be done.

I hope with your assistance to be able to make the Kemptville Agricultural School a very great factor in the improvement of conditions of agriculture in the eastern end of the Province of Ontario.

Dairymen's Association of Western Ontario

The Fifty-first Annual Convention of the Dairymen's Association of Western Ontario was held at Stratford on Wednesday and Thursday, January 16th and 17th, 1918, and, while weather conditions were unfavorable, the attendance was representative, and the proceedings were of great interest and educative value.

PRESIDENT'S ADDRESS.

R. W. STRATTON, GUELPH.

After a brief reference to the suitability of Stratford as a convention centre, the President spoke as follows:—

In the annual stock-taking for 1917, we find that prices for milk and milk products have reached the highest average on record, but, at the same time, 1917 produced some factors or conditions that make a more unsettled state of affairs than usual.

First, the cheese men think they have a grievance in the fixing of the price of cheese, and the unrestricted prices paid for milk by the condenseries, resulting in the latter paying exactly one dollar per hundred more for milk than can possibly be paid for milk to be used in making cheese. This seems unjust and is discouraging to cheese production, and up to the present time all efforts of the directors of your association to have this matter dealt with, or an equitable adjustment made, have been of no avail.

The butter men also feel sure that they have a grievance in the removal of the ban on the manufacture and importation of oleomargarine. All the petitions, resolutions, etc. (and Quebec dairymen sent in one containing 29,000 signatures) on the subject opposing it sent to the members of the Cabinet during the past year were, owing to the late rearrangement of the Cabinet of no avail, and were ignored.

What is to be done about it? We are told that the duration of its operation is for the period of the war only, but will it be? If it is controlled, it will be the first time in its history. It is up to the dairymen to see to it that the end of the war also ends the life of oleo in Canada. We feel sure that it is patriotism only that has kept the dairymen quiet, not wishing to embarrass the Government during the crisis of the war.

BUTTER GRADING.—The grading of butter is off to a good start. Mr. J. H. Scott, the official grader, is nicely situated in the Toronto Civic Abattoir, and we look for good things to come of the work, as we believe Mr. Scott to be the right man in the right place.

CREAM CANS.—It would seem to us that now is the opportune time for some step to be taken to remedy the present wasteful and extravagant system of furnishing cans. As it is now, the shipper has no interest in the cans, and the consequence is that thousands of cans throughout the country are rusting out on station platforms.

DIRECTORS' REPORT, 1917.

Your Directors beg to submit the following report. The season just closed was favorable for milk production and no prolonged period of dry, warm weather prevailed. Pastures were abundant, fodder crops, with the exception of corn were equal to and in some localities better than in former years. The price of cows, feed and labor is high, with a serious shortage of the latter. The situation has had its effect upon the total production of dairy products.

There was very little export of cream during the past year. An increase in the number of cream buying stations is noticed. We again wish to express our doubts of the wisdom of this movement on account of (a) probable effect on butter quality, (b) economic grounds, as it places another middleman between producer and consumer.

MEMBERSHIP.—Your Association has a membership of 319. Subscriptions to *Farm and Dairy* is included in the membership fee of \$1.00.

SPECIAL OFFICER.—A special officer was again employed to deal with cases of milk deterioration. Twenty-four cases were reported (19 less than the previous year), and fines from \$10.00 to \$50.00 were imposed.

DAIRY HERD COMPETITION.—The prize money for this competition was increased, and Ryrie Bros., Toronto, again very kindly donated silver and bronze medals. There are two entries, and no doubt special conditions in connection with production during the past season, together with the high standards set in previous competitions, prevented a number of patrons from entering. There is every reason to believe that this competition has assisted materially in starting some of our progressive breeders on the way to permanent success, and, through example, has encouraged many other milk producers.

DAIRY EXHIBITION.—Your directors decided to extend the prize list, which we trust meets with your approval. We appreciate your support and wish to thank all those who donated special prizes.

INSTRUCTION WORK.—A full report of the work of dairy instruction will be submitted by the chief instructor. The butter "grading service" inaugurated by the Department of Agriculture has met with general approval, and we respectfully suggest that this work be continued, in conjunction with the regular dairy instruction work.

SPEAKERS FOR ANNUAL MEETINGS.—The Dairy Branch of the Ontario Department of Agriculture again provided speakers for the annual factory meetings. This work is giving excellent results, and will be continued during the present winter.

LEGISLATION.—The Dairy Standards Act was not put into force by the Provincial Government, but an amendment to the Act to Regulate the Manufacture of Dairy Products provides for the registration, after inspection, of cream buying stations and also for the issuing of testing permits to the operators.

BOARD MEETINGS.—Your directors have endeavored to transact the business of the Association to the best of their ability. We appreciate the work of both the Federal and Provincial Departments of Agriculture, and beg to point out that the desire of this Association is to assist in placing the dairy industry on a solid basis and endeavor to keep the quality of our products second to none.

THE IMPORTANCE OF DAIRY EXHIBITIONS.—We wish to express our appreciation of the increased number of entries by the cheesemakers and buttermakers of Western Ontario for the three chief fall exhibitions (Toronto, London, and Ottawa) and also to congratulate all those who won prizes. The factory patrons deserve

much credit for supplying the excellent quality of raw material from which it was possible to make this prize cheese and butter. In this connection we wish to especially mention the Silverdale Creamery and the Black Creek Cheese Factory. Mr. Jno. R. Almont and Mr. Wm. Morse were successful in scoring the highest score for butter and cheese respectively, exhibited at the Canadian National Exhibition, Toronto. We respectfully urge the cheesemakers and buttermakers of Western Ontario to make still further efforts to exhibit their products at these exhibitions, as well as at the Winter Dairy Exhibition. Such exhibits are not only a credit to Western Ontario Dairymen, but also become an excellent means of advertising the good quality of our dairy products, and incidentally adding to the reputation of the individual factory.

It is impossible at this time to state what may be the effect upon the dairy industry of the introduction, as a war measure, of oleomargarine into Canada. There is, however, a fear that it will eventually result in not only a decrease in the total production of fats in this country, but will also have a detrimental effect upon local butter markets.

The export trade may, during the war, be extensive enough to stimulate the creamery industry to maintain near the present output, but when changed conditions arise after the war, the situation will require very careful consideration if the industry is to be prevented from receiving permanent injury and consumers also from being placed in a more difficult position than would be the case were oleomargarine not allowed.

It is also feared that to properly enforce the regulations so as to prevent the fraudulent sale of substitutes for genuine butter will be difficult if not impossible.

The price received for cheese during the past season although high compared with previous years, was less than the price paid for market milk and for condensed and powdered milk, an extensive demand for which latter products has developed during the war. Most of the milk in the cheese sections was, therefore, diverted during the fall months into other channels, thus decreasing the usual production of fall cheese.

Under existing financial and abnormal shipping conditions it was no doubt in the best interests of the cheese trade that some special arrangement was made through the former Federal Government for the Cheese Commission to purchase Canadian cheese.

Dairymen take a broad-gauge view of the situation and they have, generally, no desire to question the advisability of this change in business methods. They realize that conditions no doubt demanded some such action in order that the cheese trade might continue with the least degree of inconvenience to producers.

It is, however, pointed out that some further consideration of the situation seems necessary for the coming season to allow the various manufactured dairy products to be placed upon a more equal basis. The majority of the milk produced in Canada is manufactured into cheese and butter, the prices of which are controlled; the former through the price fixed by the British Board of Trade, and the latter indirectly by the introduction of oleomargarine. The price of the milk which goes into direct consumption or is manufactured into other forms of milk products is apparently uncontrolled, or, if so, the limit allowed is greater compared with that received for cheese and butter.

If the price paid for milk not intended to be manufactured into cheese and butter is necessary for the producers to make a profit above the cost of production, it may become difficult with the present labor shortage to fully maintain cheese and butter production unless some levelling of prices takes place, especially when there

is evidently no control of the expenditure required to cover the cost of milk production and also the cost of manufacturing, that is to say, the cost of stock feed in the first instance and the cost of supplies in the latter.

Authorities state that there is a world shortage of approximately 30 million hogs, and also a very heavy shortage of beef animals. There will be after the war a wide demand for Canadian live stock at remunerative prices, and while the war lasts the demand will be tremendous. Indications point to a long period of high prices for meat and dairy products. Dairy cows are of equal importance to wheat-growing. Should the dairy herds be reduced it will take far longer to restore them than to restore the supply of wheat. Shortly after the end of the war the urgent demand for wheat will be lessened, but the demand for live stock must, in view of the existing shortage, continue for years.

Factory cheese and buttermaking is conducive to live stock raising. The valuable by-products of whey, skim milk and buttermilk are among the cheapest and best foods for young stock, and of immense importance in the economic production of hogs and beef. The cheese and butter industry which is now passing through a critical stage of development should, therefore, receive every encouragement, not only for the reasons mentioned but also that there may be no curtailment of the output of highly concentrated human foods.

Scarcity of experienced factory assistance and farm help will further handicap the industry during the coming season.

This is the fourth report of your directors since this great world war began. No one may say how long the war may last, but perhaps before another report is due, Allied victory will be complete. Then will come peace and the readjustment period. May we prepare so far as it is humanly possible to meet these changed conditions, and in the meantime let us put forth every effort (along with the great army of dairymen of the country to the south of us who have joined hands with the other allied nations in this great fight for democracy) to increase the much-needed special food supplies of the world, dairy products, beef and bacon.

REPORT OF THE DAIRY HERD COMPETITION, 1917.

Owing chiefly to the high standard set by milk producers who entered their herds in the competition in former years the entries this year were two only.

The silver medal, donated by Ryrie Bros., Toronto, and \$15 in cash, offered by the Dairymen's Association of Western Ontario, for patrons of cheese factories sending the largest amount of milk per cow to any factory in Western Ontario, May 31st to October 31st, from herds of 8 cows or over, was won by Barnly Bros., Lambeth, with 16 grade cows: 78,601 lbs. of milk, 4,912 lbs. of milk per cow.

The bronze medal and \$15 in cash, for creamery patrons sending the largest amount of milk fat per cow to any creamery in Western Ontario, from May 1st to October 31st, from herds of 6 cows or over was won by Allen C. Hallman, New Dundee. Mr. Hallman has 196 acres; his 16 grade Durham and Holstein cows gave 1,943.8 lbs. of fat; 122 lbs. of fat per cow.

The report was adopted as read.

WHAT THE FARM BUSINESS SURVEY SHOWS.

A. LEITCH, B.S.A., ONTARIO AGRICULTURAL COLLEGE, GUELPH.

There is probably just a little doubt in the minds of some of those present as to what a Farm Business Survey is, and for that reason I will take the liberty of spending a minute or two in explaining its purposes.

We first of all must make a collection of statements of receipts and expenditures on farms during the period of a whole business year. After these statistics are collected from a sufficiently large number of farms in a community so that the results may be representative of that community, the next purpose of a survey is to so analyze those figures to find out what factors about actual farm practice make for large returns and what factors make for small returns.

There will immediately arise in your minds a criticism as to the ability to get accurate enough figures from farmers to carry on this kind of work, for the reason that as a rule farmers as a class do not keep accurate records from which to get these statistics. That is no doubt right, but although farmers are criticized for not keeping books, if you ask them about their business in a proper way, you will find they know a great deal more about their business than the average man gives them credit for. I will guarantee that 90 per cent. of the farmers in the County of Perth would not be able to tell how much money they made last year, but if you spend two or three hours with each of these farmers and asked him in a connected series of questions, details about his business, you would get a pretty accurate statement of his farm business for the past year. While he may overestimate some of the details of his work he will underestimate other details, which will bring the aggregate to very nearly an accurate estimate.

That is the system under which we try to get these statements of expenses and receipts from the farmers. We do not ask a man any personal questions that he would hesitate to answer. We did not ask him how much money he owed, we did not ask him how much money he had in the bank, we just asked him what the farm paid him during that year. That is the information we tried to get and from which we have commenced to work to find out what is the proper or nearly the proper organization for a farm business in different communities.

This work was started the 1st of October, 1917. Naturally as it was absolutely new work to us we have not made any great progress as yet. However, we chose the Township of Caledon, in the County of Peel, as a district that was fairly representative of general mixed farming conditions in Western Ontario. There are no great number of farmers in that community that are specializing along any particular line in farming. Caledon is only a township with about 500 farms, and we picked out about 175 of these which we thought would be representative of the whole township. The township has considerable waste land, as the Caledon Mountains and the Credit River run through it. There is a large proportion of land that is rocky, so we did not pick out farms that were composed mostly of this sort of land, but we took 175 farms which we thought would be suitable for our purpose.

We got the sanction of the Council of the Township of Caledon in order that we might have a little backing from a local organization, and would therefore have some better foothold in approaching the farmers. When we came to visit the farms, we found that about 30 of them were not suitable for our purpose because many of these had changed hands. Some had been tenanted farms and others had

been sold during the past year, and we could not get results of the whole year's business from one man. Six or seven of them we did not take, because they turned out to be not very representative of the community; that is, they had too much of this waste land, and there were probably 32 that refused to give us the information. When we got through on the 1st of December—two men doing the work—we had a statement from the operators of 113 farms of various sizes. It is from those figures that we are trying to find out the proper organization of a farm business for the Township of Caledon.

You will immediately say this past year is not a representative one of the past ten years of the agricultural history of the country, and it is not a representative year. It is abnormal in many ways. Prices have been higher in most cases than has ever been known before. The expenses of running a farm, that is, machinery, labor, seed, etc., has been higher, but having delayed doing this work so many years it was necessary for us to get a start because the work was new and we had to practise on somebody. We started during an abnormal year, hoping that we would get some figures of value, and expecting also that we would get an organization together that could properly do this work by having a little experience on the farms of Caledon. For this second purpose of getting experience, the Caledon survey has been highly satisfactory, but because of it being an abnormal year, we do not count as much on the accuracy of the figures, but at the same time we have some figures that will probably be of considerable interest to the members of this audience.

We have progressed so far that we are prepared to start about the middle of February on a large survey, probably between 300 or 400 farms in the County of Oxford, a dairying district. The dairymen's problems to-day are probably the most serious of those of any class of farmer. For that reason I was anxious that in really beginning our work, we should study the problems of the organization of the dairy farmer's business.

It takes considerable time working up these figures after we get them. The labor income or profit has to be worked up. However, we completed our field work in connection with the 113 farms in Caledon Township, and the same two men immediately started to work to figure up the results, and we have 67 of these farms completely worked out. It will probably take two or three weeks longer to finish the rest of them, but we are getting more expert every day.

In analyzing these figures we find there are certain features that stand out in regard to what causes some farmers to be more profitable than others, and the first thing we found was that the profit of a farm depended more on the size of the farm than on anything else. I am going to use some terms that are probably not familiar, and one is the term "Labor Income." We have not used the word "Profit" at all, in this chart which we have prepared to show our results. Labor income is what the farmer receives for his own labor after paying all the running expenses on his farm, after allowing a reasonable amount for the labor of unpaid members of his family and after allowing 5 per cent. interest on his investment. His farm expenses do not include his household expenses, what it costs him to live or buy his clothes, nor his outlay for church and charity, nor what he loses through bad business management, nor what anybody steals from him, and we did not include any income he has from investments in mortgages, etc. His labor income is what is remaining out of the farm income after paying all the running expenses of the farm, after allowing a certain amount in wages for the unpaid members of the family who worked, and after charging 5 per cent. interest on the investment.

From the following table I wish to point out some striking facts:—

SUMMARY OF FARM SURVEYING

Size in Acres.	Under 85	86-100	101-150	151-241
Number of farms.....	22	15	14	16
Average size.....	71	93	129	178
Average capital.....	6,770	9,135	13,525	15,682
Productive capital.....	4,161	6,029	8,806	10,783
Crop acres per horse.....	18	21	21	23
Crop acres per man.....	45	57	57	66
Labor income.....	408	811	1,074	1,619

EFFECT OF GOOD CROPS AND GOOD LIVESTOCK

—	Poor crops Poor stock	Poor crops Good stock	Good crops Poor stock	Good crops Good stock
Number of farms.....	17	16	16	18
Average size.....	103	119	120	118
Labor income.....	420	1,074	816	1,252

By the first column you will see there are 22 farms out of the 67 under 85 acres. That is not 85 acres of actual extent, but 85 acres of practical tillable land. We took a man's tillable land and we added for each four acres of pasture land an acre of tillable land, and for each eight to ten acres of woods pasture one acre of tillable land, so that 85 acres include the total amount of a man's tillable land plus a certain proportion of his untillable land that is valuable for pasturing brought to the basis of tillable land. Amongst those 22 are a number of farms that were 150 acres in extent that had a lot of woods on them. Where a man had 20 or 30 acres of woods that was not fit for pasture and he did not get any revenue from it, we did not count it at all. These farms range from 28 acres in extent to 161 acres, but they all had under 85 acres of productive land.

In this next class are farms ranging from 86 acres to 100 acres, and there were 15 of these. There were 14 farms that had from 101 to 150 acres, and 16 that had from 151 to 241 acres of productive land.

There were 22 farms in the first class, and their average size of productive land was 71 acres. The second class averaged 93 acres, the third 129, and the large farms averaged 178 acres of productive land.

I will go down to the final result of dividing the farms on this basis. We find one-third of these 67 farms, or 22 farms that had under 85 acres of productive land had a labor income of \$408. You can hardly show me to-day in Ontario any laboring man, farm hand, machinist, or any man that works with his hands, who gets less than \$408, if he has his health. Therefore, 22, or one-third of the farms of the Township of Caledon made less than a laboring man makes.

The second group of 15 farms with 86 to 100 acres did considerably better, with a labor income of \$811, practically twice as much. Farms averaging 129 acres had a labor income of \$1,074, and the farms from 151 to 241 acres, \$1,619. You will see that the factor that has the greatest influence on the labor income of the farmer is the size of the farm.

Another thing I wish to point out is that these small farms had just as high an average in crop yield and as high returns in live stock as any of the others. They were all practically the same or I would not have put them down, so we can say the reason one-third of the farmers in Caledon Township made only \$408 was because their farms were too small to make much more, and the reason that the 16 men with an average acreage of 178 made \$1,619 was because their farms were practically twice as large as the others. We want to find out why that is, and I have the reason in these four lines which I have not yet touched on.

Every farm, no matter how small or large, must have horses, and we find on these small farms each horse worked 18 acres of crops, while a horse on the larger farms could work 23 acres. There was one of the small reasons. One man made better use of his horses than the other as his fields were larger. Some of these farms had only 50 acres, but they had to have a team of horses just the same and some had three horses. One farm of 26 acres had a team of horses, and there were only 20 acres of real productive land out of the 26. Horse labor on a small farm is not as economical as on a large farm.

Here is another reason—crop acres worked per man. This does not only mean the farmer or his son, but it means everybody who worked on the farm. His family and hired labor are all reduced to the term "Man," and these men on small farms could work 45 acres, while those on the larger ones worked 56 acres, or practically 25 per cent. more. This has more influence than the horse labor.

A man can handle more acres on the larger farm than he can on a smaller farm. His fields are bigger, he has more acreage for each crop, and he does not have to change his work so often. He can do a day's work on one crop without having to change in the middle of the day to another crop or another branch of labor.

But there is another reason, which is the main one. The capital, that is the man's land, building, live stock and machinery, on this first group of farms averaged \$6,770. It gets larger as the size of the farm increases until this largest class of farm has pretty nearly two and a half times as much capital. The capital that a man has in buildings and machinery is not productive capital; he uses it in his business, but it does not make him any money, but his productive capital is his land and live stock and that which produces for him. We took away from this \$6,770, the amount invested in buildings and machinery, and these men had left \$4,161 for their productive capital, money that would yield them a return. You will notice that the productive capital kept increasing in each case as the farms were larger, not only kept increasing in the proportion as the farms increased in size, but in much greater proportion, that is the man on the large farm does not have as large a proportion of his capital tied up in buildings and machinery. If a man has only 20 acres, he has to have a house to live in and a barn and machinery, and these take a big bite out of the small farmer's capital and leave him too small an amount of productive capital to make a large income. Nearly \$5,000 out of capital for buildings and machinery in the last group is not as serious as \$2,600 out of the capital of the first group. That is the main reason why the man on the small farm has not the chance the man on the large farm has; he has not as much capital working for him, consequently his labor income is low.

That shows that one of the needs of our Ontario farmers to-day is a more accessible supply of cheap capital for an extended period of years, so that he can overcome by better stock and by securing more land to make his business larger. That is the great need to-day of the average farmer, as far as this survey shows. When a third of the farmers of the Township of Caledon, which is a fairly good representative general farming district, could not make any better than a hired

man's wage for themselves in the best year financially that the township ever had, I will guarantee there are nearly a third of the farmers in Ontario that are not doing any better. If this survey had been conducted and the figures the average of the last five years, this year excepted, we would have found the labor income less than nothing, because there is no farmer but what made \$400 more this year than he ever did before. That would bring the labor income of the second group down to \$400 or \$500, and we would have 37 out of 67 farmers making just as much or less than hired man's wages.

Of course that is not all the farmer had to live on. He had 5 per cent. on his capital of \$6,770, which, added to his labor income, would make about \$730. Out of that he had to feed his family, except what his farm supplied him, he had to buy his groceries, a large part of his meat, his clothes, pay his life insurance, educate his family, and put money back into his farm for any necessary improvements, and a man would not have a great deal left out of \$730 after paying for all these things.

A MEMBER: You did not ascertain what proportion of the farms were mortgaged?

MR. LEITCH: No, we did not go into that detail. We got around it in another way. If they had interest to pay, we asked them what was the rate of percentage, 5, 6, or 7 per cent., but we did not ask how much money he owed. Because if you ask farmers personal questions of that kind, they would not give you any of this information, and I do not blame them. We found out not a very large proportion of the farms in Caledon were paying interest; the thirty farms in the last two classes were nearly clear of incumbrance.

The great need of the farms in Caledon Township, which I think represents the whole Province of Ontario, is a supply of reasonable cheap capital that can be secured for a long enough period so that the farmers can improve their conditions by better live stocks and better crops, and I will show you later what influence that has. They also need more land. We have been preaching from the platform, and I have been doing it myself until two or three years ago, when I began to see the light, that the small farm well managed was better than the large farm that is not well managed. I do not believe that to-day, because there was quite a large number of these small farms that were very well managed. There were some fairly good labor incomes on this class of farm, but the average—and that is the only thing we can deal with—was only \$408 a year. I think there were nine farmers out of the 22 who worked for less than nothing after taking out the interest on their investment. That does not mean \$408 in actual cash, but a good deal of that represents increase value of live stock on hand, because live stock did take a considerable jump in value from the 1st of October, 1916, to the 1st of October, 1917, and that was the year we covered.

After we found out and were reasonably sure that the size of the farm had the greatest influence on the labor income of the farmer, we endeavored to find out what were the factors that influenced labor income apart from size, and the thought, of course, that occurred first of all was, what influence has better quality of crops and live stock in increasing the labor income? So we divided the 67 farms in another way, and I have it tabulated under the heading, "Effect of Good Crops and Good Live Stock."

We found there were 17 farms with crops below the average, and live stock that made returns below the average. By the way, the average crop yield in the Township of Caledon of the farms we surveyed was 35 bushels of oats, 30 bushels of barley, 30 bushels of mixed grain, 100 bags of potatoes, or 150 bushels per acre.

The main crop in Caledon is the potato crop. Every farmer grows a few potatoes, although there were not large acreages of potatoes such as in Middlesex and the Township of Erin, in Wellington County. But it is a soil on which potatoes do remarkably well, and they are one of the best crops they can grow for a money crop, and their average of 150 bushels to the acre is a pretty fair yield.

In order to divide these farms up according to the class of stock, we had to reduce all the other classes of live stock into terms of matured cattle. You could not compare one man with another on the number of actual head of stock. You had to reduce them to a common basis, so we figured out how many swine and pigs it took to equal a cow in the value of the feed they would consume, and how many sheep would equal a cow, and how many poultry. We had figures from the Experimental Stations by means of which we could figure this out fairly accurately. We called a matured cow an animal unit, either a beef or dairy cow, and we found three brood sows and their litters up to weaning-time equalled in value of food consumed one animal unit. We found 7 ewes or 14 lambs equalled a cow, and we found it took 100 average pigs raised from weaning time until they were 30 pounds average weight equalled one cow, or 10 pigs raised to 150 pounds in weight about equalled in feeding value what a cow would consume. We also reduced the colts to an animal unit, but not the working horses. We left them out of the calculation. We found that each animal unit had a gross return of \$76.40. That was what each animal in the Township of Caledon returned on the basis of a cow, and \$76.40 is not a large profit when a farmer has to feed his cows, pay for his labor, provide buildings for them, and pay interest on his investment. We found the cattle all reduced to terms of cows did not average much better than \$53 per head, but the pigs, sheep, and poultry pulled the average up to \$76. Pigs this year, on account of the big jump in the price of pork, were more profitable than cattle.

Again, we divided the 67 farms into four classes, and first we took farms that happened to have both crops and live stock below the average. That included all sizes of farms, big and little, a few more little ones than big ones, because the average size of these 17 farms was 103, while the others average 119. The average labor income from farms that had poor crops and poor live stock was \$420, that is the man with both poor crops and poor live stock, no matter what is the size of his farm, has no better chance to make money than the man on a small farm.

We took another class that also had poor crops, and there were 16 that had poor crops but live stock above the average, and their labor income averaged \$1,074, with an averaged sized farm of 119 acres. Now that comes from increasing the quality of stock, but leaving the crops as they were.

There were 16 other farms that had poor stock like the first class, but they had crops above the average, with an average size of 120 acres, and the labor income was \$816. You notice by increasing the quality of the live stock, we get a labor income of \$1,074, while by increasing the quality of the crop, but leaving the live stock poor, we get a labor income of only \$816. What does that point out to you? That you can get quick returns and better financial results by improving the quality of the crops, but you can get it quicker by improving the quality of the live stock. The great waste is in spending time and money growing good crops and feeding it to poor live stock. It is more wasteful and more expensive and a more losing game than by growing poor crops and feeding it to good stock. The stock has the greater influence in increasing the labor income of a farm than the crops, but if you improve both, what do you find? Three times the labor income with good crops and good stock that you got when both were poor.

These two tables show conclusively that the need in farming conditions in Ontario is cheap capital to increase a man's business, not only to increase the size of his farm, but to improve his live stock and his crops.

I hope when we have the 113 farms worked up and tabulated, to be able to show what it will cost to increase the quality of live stock \$10.00 a head in total returns, and what actual influence it has on what a man makes. I expect to be able to show also from the figures, when I get them all, just how far a farmer can go in selling cash crops off his farm, and how far he can go in specializing in live stock, but you will realize that because the size of the farm has the biggest influence, every kind of table I make along these lines must be on the basis of the same sized farms, and consequently I must have a larger number of farms than 50 or 60.

Now, that probably is as far as I can go to-day with the limited information we have so far. I had hoped when Mr. Hearn spoke to me last fall that I would have sufficient figures to show that there is some merit in this method of finding out how to improve farm conditions.

This war has probably awakened in the minds of the great majority of the people of Canada, in fact all over the world, the part that agriculture plays in the economy of the nation. For that reason help from Governments to all branches of agriculture is likely to be extended in a greater degree after this war is over than it ever was before, and unless we can find out by studying actual farming conditions just where this help is needed and where it can be properly applied, I am afraid a great deal of it will be misdirected, as a lot of it has been in the past. For that reason I would like to see, in spite of the fact that these are abnormal times, and it is very difficult to get a class of men who can do this sort of work, because they must be not only experienced farmers, but men with a little more than average book-keeping knowledge, I think this work is worthy of as much attention and as much scope as it can get at the present time if we are going to find out how to properly direct the assistance we are likely to get after the war is over from the fact that people are beginning to realize the importance of agriculture in the nation's economy. I thank you.

ADDRESS.

DR. C. A. ZAVITZ, ONTARIO AGRICULTURAL COLLEGE, GUELPH.

We have each year at Guelph a short course, and this year we have about 140 men enrolled from all over the Province of Ontario. I have them each day from the time they enroll until they leave, about two weeks. Yesterday morning we had a discussion, or, as Mr. Leitch would say, a sort of survey. I said to them, "Now you people are here for a certain purpose. You must believe that there are some ways in which you can improve your farm crops and your live stock, or you would not be here. Let us consider for a few moments what you consider the greatest weakness of crop production in the Province of Ontario. Let us consider what points can be developed in the Province of Ontario to the greatest advantage in improving farm crops." We came to a definite conclusion as far as that class was concerned, and the majority of the members of the 140 men from all over the Province of Ontario selected out what they considered five of the greatest

weaknesses, or five points regarding which greater progress could be made in crop production than any other points, and these were the points:—

1. Better seed.
2. Better cultivation.
3. Better underdrainage.
4. Better fertility.
5. Better rotation of crops.

If I had taken up that same question here this afternoon, I venture to say that we would have come to the conclusion that these five things were the most important.

There was never a time when better seed was more important than at the present time. Labor is exceptionally scarce, but if we had better seed, there is a possibility of increasing our crop production without very much increase in labor.

There are far too many varieties of farm crops in Ontario. This last year I made an inquiry over the Province of Ontario in regard to potatoes, and how many varieties of potatoes do you think were mentioned as the most extensively grown varieties in the different counties of the Province of Ontario? Fully 60 varieties of potatoes in the Province in 1917; altogether too many, realizing that we are trying to focus on a few varieties of potatoes.

What the market demands largely is a roundish, flat potato, white in color, good in quality, something like the Green Mountain, the Delaware, the Dooley, the Royal New York No. 2, and the Davies Warrior. Now that type of potato seemed to be the most profitable, if we want to grow potatoes commercially in Ontario at the present time. Therefore efforts are being made to get those sections that are growing potatoes in large quantities to continue that and to be able to send out carload lots of one variety. In Caradoc and Middlesex they are growing the Dooley potato practically entirely, and they can ship out carloads of Dooley potatoes. Down in Carlton, they grow red potatoes, the Maggie Murphy, the Dakota Red, or the New Wonderful. The red potatoes seem to suit the Ottawa market. We are trying to focus now on two varieties of potatoes, for sections that have not specialized on any particular one but are growing too many varieties, and we chose the Irish Cobbler for an early potato and the Green Mountain for a late potato.

Now, let us take the oat crop, the most important crop of Ontario. This last year it amounted to about \$75,000,000, the previous year and the year before \$50,000,000. We have been having a great many different varieties of oats in the Province.

We find the Banner Oat has been grown more than any other variety, and now the O.A.C. 72 is coming to the front very rapidly indeed. Some six years ago there was sufficient of it to take the first prize in one agricultural society of Ontario, while in 1916 in 77 agricultural societies that one variety, O.A.C. 72, took first prize. I hope it will displace a large number so that we will get a uniformity in regard to our variety of oats in Ontario.

In barley we have already quite a uniformity. We have the O.A.C. 21, which is grown very extensively throughout this Province. At the Winter Fair at Guelph in the last three years there has not been one entry of any other variety except one this winter of the Manchuria variety.

When we come to Spring wheat, I believe one of the best varieties to grow now is the Marquis, a variety not only grown in the Province of Ontario, but in the Western Provinces. It is a good yielder, almost equal to the Wild Goose, and of high quality for milling purposes.

(The speaker here dwelt at some length on the patriotic side of wheat production.)

What are we going to do in Canada in regard to wheat this coming year? We thought there would be a considerable amount of increase in our fall wheat, but we had adverse conditions last fall, and we found out there was just about as much fall wheat planted last fall as there was the year before, and considerably less than the year before—600,000 acres less fall wheat last year than the year before. There was just about enough fall wheat sown to feed ourselves; then we will be able to export what we get of spring wheat. Realizing the fact that we have during the past three years obtained in the Province of Ontario a greater yield per acre than the average of any three consecutive years in the past 35 years, outside of last year, and recognizing the call of the world for wheat, is there not a good deal of inducement at the present time for the people in Perth County to increase the 1,200 acres you had last year to probably 2,000 acres without a great deal more labor. There is an opportunity for us increasing our spring wheat crops without very much trouble, and I would suggest in the first place, in regard to varieties, the Marquis, although the Wild Goose might possibly yield about one bushel or a bushel and a half more than the Marquis, but it is not as good a milling wheat.

A great problem now is the seed corn, and I can simply tell you this: that the seed corn problem is a very serious one at the present time. In Essex and Kent, I do not know whether they have much more seed than to put in their own crops. There is more corn in the United States than there has been ever before, but 30 or 40 per cent. of it is soft, and the germination poor. When they came to analyze their corn, which they thought was very good, it only gave 30 or 40 per cent. germination. My advice to you would be to get your seed corn as soon as you can and look it over. Be careful of the germination of the seed corn.

I do not need to say much about beans. It is a valuable crop, but it is like the corn question, although not so bad. Anybody who wants beans ought to get them as soon as they possibly can. They will be \$10 or \$12 a bushel. Beans are selling between \$7 and \$8 a bushel, and there is a big demand for that sort of crop. The common white pea bean is the commercial bean of Ontario.

In regard to root seed, we also find a very critical condition. We obtained a large amount of root seed from England, France, and Germany. Now there is practically none coming from those sources, and there is not enough turnip seed for the season's use. We are doing what we can in different places to produce root seed in this country, where they can be grown—turnip seed in Nova Scotia and mangel seed in Ontario and British Columbia. We have been experimenting in growing mangel seed at Guelph for the last eight or ten years, and we find we can produce root seed in Ontario, the quality of which is superior, according to our experiments, to imported seed.

Last year, 1917, we put in a little less than an acre, and we had about 1,700 pounds of seed. We are cleaning it, and I think we will have about 1,500 pounds of choice seed over 200 per cent. germination. I think we could realize \$1 a pound for it if we wanted to sell it, and that would be \$1,500 worth grown at Guelph last year. My suggestion would be for you people to go to the root cellar and get some mangel or turnip roots and plant them out this year in your garden or some where near your buildings. Get nice firm roots and plant them out, leaving the crown of the root about level with the ground, and watch them grow and produce your own seed, and not be obliged to pay such a large amount. I doubt that you will do quite as well with turnip seed as with mangel seed. I have my doubts if turnip seed can be produced in Ontario as satisfactorily as mangel seed, but turnip seed can be produced satisfactorily in Nova Scotia.

While it is important to have good varieties, it is also important to have a

good quality of seed. We conducted experiments in which we used different sized seed of wheat, oats, barley and peas, large, medium and small seed. We had one plot of large, plump seed, another plot of the same variety but semi-plump seed, and we had a decrease of 20 per cent. over the large plump seed, and if we use shrunken seed we have another decrease of 19 per cent. We want to have large seed and we want to have plump seed, and we want to have sound seed.

As to the time of sowing, we conducted experiments for five years in which we sowed spring wheat, oats, barley and peas, all with a drill and broadcast, as early as we could sow those grains in the spring of the year, on uniform plots, and right beside the others we sowed similar plots the end of that week, and the week after and the week after that, and the week later and the next week, making six different times of seeding over a period of five weeks. There was a wonderful difference in the results.

My advice would be to put in your spring wheat early, just as quickly as you can get on your land. Then follow that with barley. You may think you will get it frozen, but we put it in as quickly as we can, and sometimes we get a little frost, but taking one year with another we get a better yield per acre from the beginning of the first week we go on the land as compared with the end of the first week. With oats it does not make so much difference whether you put it in the beginning or end of the first week, a few pounds perhaps. With peas we get the best results from the fourth date of seeding.

First, sow your spring wheat, then barley, oats and then peas later. For every single day's delay after the first week is past in sowing these grains in the spring of the year, there is a decrease in yield per acre of about 48 or 49 pounds of spring wheat, 48 pounds of barley, 28 pounds of oats, and 22 pounds of peas.

I believe at this time we might even put more stress than we have on growing grains in mixtures. You are doing that in Oxford County and in Perth. Barley and oats stand at the top of the list. Take O.A.C. 72 oats, along with O.A.C. 21 barley, mixed in the proportion of one bushel of each by weight, and you will harvest a splendid crop for green fodder. We have found oats and peas a good mixture. For the Province of Ontario I would prefer, under ordinary conditions, two bushels of oats and one of peas per acre. Get an oat that will stand up very well, such as the Banner or the O.A.C. 72, mixed with two bushels of peas like the Golden Vine or the Maltflower or the Prussian Blue, a pea with a long slender vine that will come up among the grain, and you will have the heads of oats and peas about even. If we do not need it for a green crop, if we have good pasture, then we can use it for hay. Cut it when the oats are out in bloom in a milky condition, and the peas two-thirds grown in the pod, and it makes a good quality of hay. If you do not need it for pasture or hay, then allow it to ripen and thresh it out in the fall. With the scarcity of corn, and when we take everything into consideration, I believe it will be an advantage—and I do not see any great disadvantage to give very close attention to the production of some green fodder crops such as I have been mentioning, which will supplement your pasture and your hay or supplement your green feed in the form of grain. Oats and peas make a very good grain when ground, but not quite as large a yield as oats and barley. If I were growing it specially for grain I would put in oats and barley, but oats and peas if allowed to ripen will give you a pretty good yield and a grain of very excellent quality indeed.

I have tried to touch on some of those points which I thought might be of real service.

MODERN COW TESTING.

C. F. WHITLEY, DAIRY RECORDS, DOMINION DEPARTMENT OF AGRICULTURE,
OTTAWA.

To-day cows are appealed to as empire necessities, for our soldiers and babies find milk and butter fat as essential as wheat. Then, too, we have the satisfaction of noting that a real endeavor appears to be in progress, possibly the first honest endeavor, to arrive at the cost of milk, to appreciate it as a food and the great nutritive food value of all cow products. The nation needs every drop of milk that can be produced; it has no substitute.

Every dairyman knows that with fair feed prices and fair labor costs he can make more on milk than he can on beef; and the cow is worth three times as much as a milk producer as when turned into meat.

So once again we have tried to dig into a mass of 205,000 individual cow records received at the office during the year, to see if figures talk in dual language, and if they can be translated into any worth-while suggestions for modern work.

The French Government wishes to purchase one million cows from this continent as soon as the blessings of peace are ours once more. The stage is being set for big business, in which cow testing is to play a star role. France will not want poor milkers, but will assuredly want to buy from men who have saved every productive cow, and her promising heifers; remunerative prices will be obtained from these purchasers who will ask for records of milk and fat production.

Does it pay to keep records? At a recent auction sale two herds of equally well bred cows were put up: one lot, with no records, averaged \$145.00; the other lot, with records, fetched an average price of \$303.00, more than twice as much. This is a second indication that it pays in these modern, busy times to regard cow testing not as a mere unimportant incident, but part and parcel of one's main occupation.

Arising from that is this thought, a man here and there may be overstocked, others need more; might there not be established on this as on the other side of the line, dairy cow exchanges, whereby every useful cow could be placed with some farmer who wants her, and so halt the weary procession to the slaughter house? Surely we are scarcely acting wisely when cows giving upwards of eight thousand pounds of milk are being sold for beef.

Closely connected is the exchange of good pure bred dairy sires, advocated so frequently, for it is good modern policy to save, not kill them before their real value is known. Are we not literally and entirely dependent upon that marvellous ingrained feature of heredity in the pure bred, ability to transmit producing quality?

You remember we have an Ontario law against a grade stallion, it is but a step now towards regulating scrub dairy sires. Let us remember we cannot expect improvement from the grade, we rightly demand it from the pure bred. Our recorders in 35 districts report that out of a total of 5,620 sires in use, 47 per cent. are grades, and out of the remaining pure bred, one-third are poor, undesirable. We need more foresight.

We all know that the richly bred sire, presenting finest individuality combined with extreme dairy capacity, a triumph of the Canadian breeder, is worth big money (he can be purchased co-operatively or obtained from the Department) when records show that he has forty or fifty daughters that have given over 2,500 pounds of milk in a month, or when mated with grade cows he has far more

than doubled their yield of fat in two generations; so, plainly, the modern dairyman can scarcely afford to overlook the importance of this factor as shown by dairy records.

Our supremest energies are needed to-day, we cannot afford to fuss and fritter with the three thousand pound cow. Such owners appear adrift on an ocean of unbelief regarding true values.

It appears that the most successful dairymen are those who display most sympathy with cows of fine quality, records indicate a cow's needs and preferences in such matters as care, feed and attention; and the more that these two features of her life—the literal self-sacrifice of a good cow in the breaking down of her actual cell tissue to make milk (as distinguished from the selfish storage instinct of the beef type) and then her wonderful, unceasing, hourly service for humanity—when these are appraised by the true dairyman, who is always of fine quality, then the more eager will both men and cows be, mutually, to do their very best. It is a simple equation, sympathy plus sacrifice equals larger service. Again and again, in support of this, our records indicate that with only slightly increased feed, but with far better care and attention, the yield is increased.

Great satisfaction from dairy records comes in the avoidance of putting in time working for unprofitable cows, and the enjoyment of more cash and larger profit from selected individuals.

Some of the records we receive show big things being done, \$200, \$250 or more being earned per cow, one group of 180 cows giving a million and a half pounds of milk, bringing fair reward for the owner's investment in feed. But whether all his weary hours of time, his hard labor, his unflagging energy, his superior talent, evidenced in careful thought, wise forethought, and matured planning have been suitably rewarded is quite another question. Especially is that true to-day when the general public is obtaining a glimmer of light on the question of the time put in gratuitously by farmers and farmerettes, the families of dairymen, their wives and daughters, and how much good brain power it takes to run a dairy farm profitably.

If in modern dairying with experienced men dependent on milk for income we still find differences of \$40 and \$60 gross revenue between two cows in the same herd, it makes one stop and think. Is it possible to locate exactly just what it is, definitely, that makes two cows that look alike, are alike, as far as practiced, expert eyes can see, act in such radically different fashion at the pail? Is there some hidden principle in the blood? Perhaps a scientist by patient analysis in a laboratory will discover it.

Cow testing is bound to spread because it has the right foundation, the genuine desire to advance the cause of dairying through co-operative united effort; members are working to build a greater and better dairying industry, better farms, better cows, improved farm life. There is imperative need for more and better cows for the welfare of our own and other nations; cow testing will help to select the best and to maintain good herds. Rapid increase is dependent on the hearty co-operation of the individual farmer and everyone who can run a Babcock tester.

Note where men are keeping track of weights and tests and you find their cows are head and shoulders above the average yields of the township or county, twenty-five dollars or more per cow. Where records are kept the herd shows improvement, where the farm and the cows have a poor appearance it is probable the owner is not weighing and sampling; but where the scale is used and the record sheet is studied, there, on every such farm, you find the milk yield per

cow steadily climbing, four thousand pounds one year soon made six thousand, the one hundred and fifty pounds of fat made into two hundred and fifty; elsewhere you note the yield is up to the eight and nine thousand pound level, or maybe the figures are in the fourteen and fifteen thousand class (I am quoting actual records) and three and four hundred pounds of fat per cow, with one hundred dollars or more clear profit per cow above feed cost, and a return of two dollars and a quarter for every dollar spent for feed.

Please note this obvious fact, so obvious indeed, that one is apt to overlook it, men are absolutely dependent on figures to substantiate the bare statement that the cows did well, records are the necessary proof that the yield is high. Without the figures one is lost in a mist of uncertainty, but the beacon light of dairy records leads positively to solid and lasting herd improvement.

May I suggest that we all secure places on the builders' committee of this great Canadian Construction Club, Cow Testing; that we help the doubting Thomas's to kick away their crutches of indecision and join the big class of stalwart A1 dairymen in their forward movement: for this fact must surely be in the lavender jar of your remembrance, the successful dairymen everywhere are those who practise modern cow testing.

ADDRESSES OF WELCOME.

His Worship, Mayor Monteith and Mr. Chas. Farquaharson, President of the Board of Trade of Stratford in brief addresses welcomed the delegates of the Association to Stratford and offered the freedom of the city.

ADDRESS.

SIR WILLIAM HEARST, PRIME MINISTER AND MINISTER OF AGRICULTURE FOR ONTARIO, TORONTO.

It is always a privilege to me to meet the citizens of this great Province in every part of it, and under almost any conditions, but it is a special pleasure to meet the men engaged in the dairy industry—men engaged in the great work of production at this time—a work that is of so vital importance to the Empire, and is the most important and the most vital work that men can be engaged in outside, at all events, of the men who are holding the line in France and Flanders, that line which holds the liberty of the world. I know when I am addressing the Western Dairymen's Association that I am addressing an ancient and honorable institution; ancient in that it has existed for over half a century, honorable in the splendid services it has rendered to the important dairy business in this part of Ontario, and for the general welfare and building up of this great agricultural section of the Province.

I am glad to be able to congratulate the men engaged in the dairy industry on the results they have been able to achieve in the year just closed. The volume of output has, on the whole, been well maintained, while the prices have been unusually high; and I think perhaps it can be truthfully said that the past year has been one of the most successful in the history of the industry in this section.

When considering the value of the cheese and butter output this year, we must not forget that in addition to our production of these commodities, large quantities of milk have been purchased at good prices by factories producing condensed and powdered milk. This is a special industry developed by the war, and no doubt will, to some extent at all events, die out with the war. Those perhaps who are not profiting by the somewhat high prices paid for milk by many of these factories will be glad to get back to the more stable industries of cheese and butter making in the days that are to come.

THE YEAR'S PROBLEMS. While the year has been a profitable one and satisfactory from many standpoints, it has had its problems—problems of supplies for the factory men; problems of labor and of prices for both factory men and producer. The advent of oleomargarine, under the war conditions now existing, has also introduced a new problem.

These and other problems have been present and have presented difficulties which at times were important and very burdensome to those who had to contend with them. When, however, we look at the war-ridden and partially fed people of Europe, or when we look at other sections of the Empire, such as Australia and New Zealand, and see the storage houses piled up with dairy products and animal products, for which shipping facilities are not available, and for which, in consequence, there is only a tardy market, we have reason to thank God that our lot is cast in the good old Province of Ontario, and we have further reason for thankfulness for the might of the British Navy which keeps our homes inviolate and the trade routes of the sea open for the products of our farms and our factories.

WORK OF THE DEPARTMENT OF AGRICULTURE. Meeting as you do in this organization to review the work of the past year and to plan for the future, it may not be without interest to mention some features of the work of the Ontario Department of Agriculture during the past year.

Our great endeavor has been to work with those engaged in all branches of agricultural industry in the Province, and to direct our work along the most practical and effective lines, lines that will do the most good and bring the best results.

GRADING OF BUTTER.—One of the features taken up during the past year in which you have been interested is that of the grading of butter. This is a matter which has been discussed at these Annual Conventions for a number of years. Ontario butter found its way during recent years to the British market, and when the war is over we hope Ontario's butter will find its way in larger quantities to that market. If this is to be accomplished, our butter must go on the market in large quantities of high grade and uniform quantity, and those who have given the subject most thought are satisfied that grading is the only process by which this can be satisfactorily accomplished.

Accordingly, the Department established grading stations at Toronto and London, and a large number of factories take advantage of the offer of the Department to grade their products. Grading is, of course, optional and under present market conditions when there is such a strong demand, the circumstances are not most favorable for work of this kind. However, enough factories have taken advantage of the plan to give the work a splendid start, and further development is looked for in the future.

One of the significant facts revealed by the grading work up to the present time has been that eighty-one per cent. of the butter sent in, graded number one. Whether this may be accepted a fair criterion of all the butter of the Province or not, it is perhaps difficult to say.

We may, however, take confidence that the quality of Ontario's butter is being maintained and that Ontario's creameries have the skill, industry and enterprise to ensure a good future for Ontario butter. The result of grading has been to encourage those interested in the industry and speaks well for those who have the work in hand.

WOOL GRADING. Another matter that we entered upon this year was that of wool grading. The value of grading was also revealed by the work of the Department during the year in connection with the grading of wool. Early in the year, officers of the Department, co-operating with the Sheep Breeders' Association, made arrangements to have all the wool to be marketed shipped to Guelph, where it was graded, and something over 270,000 pounds were sold in this co-operative way, and the top price was 67c. per lb., with an average price for all of 61c. per lb. This was twice as much as the prices which prevailed in previous years, and what is more important still, was more than 10c. per lb. higher than the prices prevailing at country points for farmers' wool, prior to the date of this sale.

In other words, those who sold their wool co-operatively under this system received ten cents more per lb. than they would have received had they sold it to country buyers as in the past. This is a striking evidence of the value both of co-operation and grading.

LIVE STOCK INDUSTRY. As dairymen you are extremely interested in the live stock industry in all its branches, and in connection with that industry, I notice in looking over the figures for this Province that Ontario is holding her own and increasing in some cases the number of live stock in this Province as compared with the number immediately preceding the war, and I want to say as emphatically as possible: Notwithstanding the temptations or the difficulties before you, hold on to your flocks and herds, particularly the foundation breeding stock.

When this war is over, Europe, hungry for meat and for live stock products, will look to America to replenish her depleted supplies. There is no doubt that the live stock of all the countries of Europe and even of Great Britain has been reduced to an alarming extent during the past years of war. They undoubtedly will be further reduced before peace is declared. There is also no doubt that this reduction cannot be replaced in a year or two, as is the case with cereal products, where a year's good harvest may be very effective in bringing up reserves. It will take years to bring their flocks and herds back to normal, and Ontario should be in a position to secure a portion of the business which will no doubt come to this continent in the reconstruction period.

There are many other problems that we have dealt with during the year that I only want to touch on in the briefest way possible. We have had before us constantly the question of how to keep our young men on the farm, how to prevent rural de-population; how to build up a strong and sturdy rural population. One thing we tried to do in this connection was to give greater attention to the study of agriculture in the schools. We surveyed the field to see in what way we could possibly improve methods, particularly in our public schools, so that the boys and girls would get an education that would fit them for agricultural life. We think it should be emphasized to the fullest extent possible.

SCHOOL FAIRS. It has been a source of pleasure this year to visit the school fairs. These are growing throughout the different sections of the Province and create an interest of the boys and girls in animals, roots, grains and everything produced on the farm, and are very helpful in creating a greater interest in our boys and girls in farm production.

GOOD ROADS. Another matter that is receiving the attention of the people of this Province is that of good roads. The Government has tried to map out a scheme of good roads running between the great urban centres, not only Provincial roads and county roads but roads leading to other sections of the Province so that the farmer may have a good road to carry his produce to market, whether with team or automobile or whatever kind of conveyance he may use. I believe one of the great things in the future is to bridge, as well as we can, the distance between the man on the farm who produces the foodstuffs and the man in the home who consumes them, so that middle prices may be eliminated as far as it is practical to do so.

The work of road construction is not going on to any extent at the present time. The reason for that is this: we do not think it is right, in view of the scarcity of financial resources and scarcity of labor to carry on work of this kind. As you know we have, in the last two years raised greatly the fee charged for automobile licenses. That sum will be maintained, and at the end of the war we will have a large amount of money from that source alone to proceed with the construction of roads. We believe labor will be more plentiful then, the present industrial works will be closed down, and we will be able to do a two-fold good—give labor to the unemployed and help in the construction of roads of the character I have mentioned.

ELECTRICITY ON FARM. Another great move forward at the present time is the extension of the electrical system to different sections of the Province. Just now there is a shortage of electricity owing to the demand in munitions and other war factories. The Hydro-Electric Commission is proceeding with the development of the Chippewa Creek plant, and then there will be ample power for this section of the Province for some years to come. There will then be greater distribution so that the farmers to a greater extent than at present will be able to have the boon of cheap power and light, and possibly cheap heat in the not distant future.

In this and other ways we have been trying to help to build up rural conditions and we will continue as far as possible to assist in that connection.

REASONS FOR ACCEPTING PORTFOLIO OF AGRICULTURE. I want to explain in a few words how I happen to be at the present time Minister of Agriculture. A little over a year ago, the late Minister of Agriculture, the Hon. James Duff, was called by death. I am sure it was a shock to this Association and a shock to the people generally throughout the Province of Ontario. James Duff was loved for his manly qualities and noble sentiments wherever he was known. Having been deprived of his services, I decided, for a time, to take the duties of the office upon my own shoulders, not because I was able to bring to the Department either expert knowledge or practical experience of any great value. I attempted to meet that by the appointment of Dr. Creelman as Commissioner of Agriculture, so that he would look after that end of it, and I believe that he is looking after it faithfully and well. My object was to learn, as Prime Minister, the problems and the difficulties at first hand with which the farmer has to contend. I wanted as Prime Minister to know these as intimately as I possibly could so that in every way I could devise plans to meet these difficulties.

There was another reason why I wanted to assume the whole responsibility, great as it was, during this time—and that was the great necessity for production at the present. We need greater production than ever before in order that the armies in the Old Land may be fed. We can only get that production through the farmers. They are entitled to every assistance and help and co-operation

that they can receive from the Government of the day, so I was determined to look into the matter personally, and take the responsibility personally, so that they would get everything we felt could be done with reason to help them in the work, and to see that no appropriations were withheld that might advance the work of production. While we have not accomplished all we would have liked, I can say this that no expert of the Agricultural Department has made a demand for an appropriation or suggested any practical plan that they have not been given authority to proceed with, and not one dollar has been asked for that has not been granted in connection with their work.

There was another feature that I wanted specially to take up and one that the Prime Minister could himself only successfully accomplish. We have not only the Experimental Farm at Guelph, and other experimental farms now under the control of the Agricultural Department, but we have a number of farms under the Provincial Secretary's Department. They are highly cultivated, well fertilized and have valuable and well bred herds and stock. I felt that perhaps these could be made use of to a greater extent for the benefit of the farmers of the Provinces generally, that the experiments carried on at these institutions and the results achieved could be made more valuable than in the past. We also have farms under the Educational Department, and so I set out, and I think I have accomplished the co-ordinating of the work of the farms in these different sections, so that now, the people of the Province interested in agriculture, will not only have the results achieved from Guelph and our own farms, but from the farms of the Provincial Secretary's Department and the Department of Education as well.

I want to deal with that a little farther on, and I will not dwell on it at the present time.

One disappointment of the year has been my inability to meet farmers and those interested in Agriculture at such gatherings as we have to-night as often as I would have liked, so as to discuss these questions with the farmers, have the benefit of their viewpoint and see in what way we might be of further assistance. War work, Patriotic, Victory Loans, Red Cross, election and other campaigns, added to my other work, have rendered this impossible. We hope in the future we will have more opportunities, but there is one special appeal that I want to make to this audience to-night, and that is an appeal for greater co-operation, for a better understanding, for more sympathy between men of all classes, creeds, conditions, occupations and callings in the country. The man, whoever that man may be, farmer, politician, newspaper editor—or I care not what he may be—that tries to set one class against another in this country is a friend to none and an enemy to the whole country.

Where abuses exist, call them to the attention of the Government or the authority responsible and if proper remedy is not applied, condemn in as strong measures as you please the parties responsible, but don't by vague generalities, and without proper information make statements and insinuations that create prejudice, unrest and suspicion.

We recognize that the Department of Agriculture can be of little value to the Province unless we have the sympathy and co-operation of those engaged in the different branches of agriculture. With your help and sympathy and co-operation, we believe we can be of real service to the agricultural interests.

We want your advice, we want your assistance, we want your suggestions, and I assure you that every suggestion made to us will receive the very best thought and consideration we are capable of giving it.

If you have problems that you think we can help you with, bring them to us. We will be delighted to give any assistance in our power. That is the purpose for which we keep a staff and experts in the service.

Born and raised on a farm, having put in many a hard day's work, I know something of the troubles and appreciate something of the conditions that exist on the farm, and no one has less sympathy than I have with many of the senseless criticisms that are made by dwellers of the city and town.

There is another side to that, and I want to speak frankly and plainly to-night. The fault does not altogether lie with the people in the towns and cities. Their advances and efforts to acquaint themselves with the problems of your work are not always met with enthusiasm. When the man in the city addresses himself to rural problems, he is told he is a hot air artist, and the men in the country want nothing to do with them.

If this war teaches us nothing else, it teaches us the dependence of one upon the other, of one class upon the other, of one citizen upon the other and the absolute necessity of co-operation of men of all callings, classes and conditions.

But for our gallant soldiers at the front, the light of freedom would have gone out. Might would have triumphed over right. The Prussian Tax Collector would be at our door demanding a contribution for indemnities and the maintenance of the all powerful German military machine. Our gallant soldiers would have been powerless without guns and munitions. These alone could be supplied with the capital furnished by our manufacturers and the labor supplied by our workmen and workwomen.

Guns and munitions would have been useless without food to maintain our troops in the field. Foodstuffs alone could be supplied from the farm. These in turn could only be made available for our troops by our transportation companies on land and sea and by the protection of the British Fleet.

Again, the munitions and provisions could not have been secured without money, and the Government could only secure the money from the people of the country. You have made a magnificent response in the recent War Loan. Then, surely, this is a time for us to look at every subject from the other fellow's viewpoint and try and improve our relations between each other and to work together with greater harmony and co-operation than has existed in the past.

If the farmers are suffering injustices, point them out. Try and find the remedy and demand that it be applied by the proper authority, but look at the subject from a broad national standpoint. Look at it not alone as it may affect you, but as it may affect the Province, the Dominion, the Empire, yes, the world at large.

The Department wants to help you in every way possible, and if you have any concrete suggestion to make as to how we can help other than we are already doing, if it is considered practicable by the experts upon whose advice I must necessarily rely and within reasonable limits financially, it will be done.

Again I want to repeat that the message I have to-night, the appeal I have to make is for greater sympathy and co-operation between all classes and people of this great Province of Ontario in this day of peril and trial in which we are passing.

DUTY TO PUBLIC MEN. Men in public life in war or in peace have no right to expect freedom from criticism when they do wrong, or fail to discharge their duty, but particularly at this hour of peril, public men have the right to expect that such criticisms should have solid foundation, should be helpful, should be constructive, and it is our duty as good loyal citizens to strengthen and sustain

the authority of the men at the helm—to encourage them in their responsibility, and free them from embarrassment, so that they may concentrate their whole energy on the dreadful enemy in front, and have no anxieties at home.

FARM LABOR PROBLEM. Perhaps one of the most difficult problems with which you have to deal, the problem that is troubling the Department more than any during the past year, is the question of labor. We have endeavored, through the Organization of Resources Committee and through other organizations whose sympathies we could enlist, to meet this condition as well as we possibly can.

Something over 7,000 High School boys were placed on farms last year, and reports on the whole indicate they did splendid service. We have had the greatest praise for the work performed by these boys. No doubt there were cases where they were not a success, but on the whole they were a splendid success.

The girls did not allow the boys to excel them in patriotic work last year, and thousands of girls were employed on the farms, particularly in the fruit district of Niagara and elsewhere. They performed their duties nobly and well, and the best possible reports came from all sections in which they were engaged. The girls and women of the country will play a bigger part this year than last. As the pressure of work comes upon us, more of that work will have to be taken up and I believe will be willingly taken up by the women of the country. Day by day women are getting nearer the fighting line.

Labor conditions are bound to be acute again this year. The Department of Agriculture and the Military Department at Ottawa have the subject under consideration, and we are awaiting their decisions with interest. Only to-day a conference is being held at Ottawa attended by representatives from all the Provinces of Canada to confer with each other and see what are the best plans for supplying labor for the farms during the coming season. I am not prepared to say what will be done. I can only assure you this that the Government will be anxious to do everything in our power to assist in securing the help needed upon the farms. It will not be possible to get all the help of the kind you want, but we believe the want will be fairly well met.

HELP FROM RETURNED SOLDIERS. There is one source of help in addition to the boys and girls and in addition to the temporary help that went from the towns and cities, and that is from the returned soldiers. Some were accustomed to work on the farm before they went away, accustomed to the use of horses and machinery. They are offering their services freely now, and we are setting plans on foot to organize them to the greatest possible extent. Only yesterday I was assured by an officer of the Great War Veterans Association that they would be able to supply men to run all the tractors in the Province of Ontario during this year. That is a new and good source from which we hope to draw during the year.

CHINESE LABOR. We see some talk in the press about the Chinese labor. I have no faith in any good from that particular suggestion. I do not believe we want them on the farms in the Province of Ontario. I do not believe they would be able to do effective work or that the results would be desirable. I am speaking from my own viewpoint on the subject. I doubt very much that you will gain anything from alien enemy labor. However, these are problems that are being dealt with and the best consideration of the Government at Ottawa—which is the only Government that can handle these questions—will be given to them I am sure.

RE FARM TRACTORS. During last year in our effort to secure the greatest production we could and in order to help along that line, we decided to purchase

a number of tractors for distribution throughout the Province. Altogether 130 farm tractors were purchased by the Government and put to work. Fourteen different types of these were secured. We felt in addition to the work these tractors might do, we would be able to demonstrate to the farmers the advisability or inadvisability of purchasing tractors for farm work. We kept a record of what these tractors did, so that the farmers will know what it costs and all the information connected with it that we can give. More than that, the farmer will have an opportunity of judging of the different types and generally appreciating the benefit of motive power upon the farm.

The direct result was something of no little importance.—The fact that these machines were employed helped to stimulate production very much. The season was bad. In one portion of the Province the season was wet, in another too dry, and it was difficult to secure experienced operators and the work was handicapped in every direction, but we plowed some 25,000 acres of land, 65 per cent. of which would not have been plowed had these tractors not been available.

You had no tractors in the County of Perth. One reason for that was the fact that you have no District Representative. The tractors were handled through our District Representatives. We had to have some experienced man in each centre to whom we could send the tractors who would be responsible for the work, a man in the employment of the Government who would see that the interest of the Government and the property of the public was protected in every way.

I have nothing to say about your failure to have a District Representative in the County of Perth. That is a matter in which you have local jurisdiction. It is for the people of this county to say as to whether or not you think it advisable to have one. The District Representatives who are successful—and the large proportion have been successful—have been the greatest avenue for the dissemination of knowledge, for the stirring up of interest in agriculture and for the benefit of the agricultural interests generally in the Province. I think you are missing one of the greatest factors available to-day to help forward your interest. But that is a matter for yourself, and I simply refer to it in explanation of the fact that you have no farm tractor here.

Notwithstanding the fact that you have no District Representative, if you feel a farm tractor this year would be of material advantage to you in stimulating your production, if you have some concrete proposition to make to us, some organization that will be responsible for the tractor itself and the working of it, we will try and meet you in that regard.

LIVESTOCK EXPERIMENTAL WORK CONDUCTED BY THE PROVINCIAL SECRETARY'S DEPARTMENT IN CO-OPERATION WITH THE DEPARTMENT OF AGRICULTURE. I told you a little while ago that one of the objects I had in view last year was the co-ordination of the work of the farms under the different Departments of the Government, and the utilization of these farms so as to give the greatest information possible to the agriculturists of the Province. One work that we took up was that of pure-bred animals. At some of these farms we have very fine herds indeed, and we want all the information possible from these herds to be available for the farmers of the Province. Not only that, but we want to distribute the extra fine animals we are able to produce throughout the Province in such a way as to bring the best results.

- There is another thing that we are taking up that we think will be of interest to you. The importance of pure-bred sires is admitted by all authorities on live stock, but up to the present time no experiments have been conducted in this

country to demonstrate what may be accomplished in this way. Plans are being prepared by the Department of Agriculture, in co-operation with the Provincial Secretary's Department, to demonstrate the value of pure-bred sires which should leave no doubt as to their value.

For this experiment ten or twelve cows of inferior quality and breeding will be selected as the foundation herd. These cows and each succeeding generation will be bred to a pure-bred sire of high class quality and breeding. Records will be kept of the milk production and photographs taken of each individual in the foundation herd and the individuals of each succeeding generation. In this way we will be able to have actual results of the gradual improvement in type and milk production.

A similar experiment will be conducted to illustrate the value of pure-bred sires producing animals for beef production. The same foundation herd will be used for this purpose.

PURE SEED.—Another matter that we have been studying very carefully during the past year and that we propose to use these farms for is that of the production of pure seed. It is unnecessary for me to speak to farmers of your class to urge upon you the use of the best seed available. In order to increase the volume of seed, we are using these farms to produce seed that we can disseminate throughout the country.

The farm at Burwash is being particularly used for the production of seed potatoes. In looking over the field we found we were not as successful in Ontario in growing potatoes as we should be. The crops were not as large as they ought to be per acre, and the quality not as good, so a study was made, and it was found one great source of trouble was diseases that were prevalent in old Ontario that were not discovered by the farmers. On investigation they found these diseases were practically unknown in Northern Ontario, so we are striving now to make Northern Ontario the source of supply of pure seed for the whole Province.

Another step taken in connection with potatoes was the standardization of varieties. That was thought to be of great help and assistance to those engaged in this matter.

FARM SURVEY. I understand this afternoon you had a lecture from a gentleman engaged in farm survey work, so I need say nothing about that. That, I think, is a matter of great importance. Nothing has interested me more than the results that we have found out from the survey so far as at present carried on. I think it will enable us to put our finger upon the weak points in connection with farming, enable the farmer to see where his mistakes are, and enable the Government to see in what lines they direct their activities in particular townships and sections of the Province.

DIFFICULTY OF PROCURING SEED.—One of the problems that you had to face last year was that of seed. Seed was scarce and difficult to procure, and the price was high. Some difficulties present themselves in an aggravated form this year. I am assured from Ottawa that provision has been made so far as grains are concerned, that no difficulty will be encountered this year in obtaining all the seed necessary. Perhaps the seed you are particularly interested in, and one in which this Province is interested in more than any other Province, is that of seed corn. Corn for seed is presenting an exceedingly difficult problem. The Government at Ottawa say they are not in a position to take this question up, as I hoped they would be. I will only say in the Department at Toronto we have certain plans under way, and I hope at an early date to be able to announce something of interest to you and all corn-growers of the Province. You can rest assured every effort that can

be made will be made to meet the situation. Neither trouble nor expense will be saved in order to see that this is accomplished.

SHEEP AND CATTLE RANCHING INVESTIGATION. When the question of food became so important, particularly the question of beef and mutton, and when the question of the supply of wool became acute, I thought of the great vacant spaces with which I am acquainted more or less, the rough land in Northern Ontario. We have millions of acres there of as fine agricultural land as there is under the sun still awaiting settlement, but we have millions more acres not adapted for intensive cultivation which will not be taken up for many years to come until the other land that I have spoken of is fully settled and tilled. I wondered if these lands could not be utilized for ranching purposes, and we gave instructions to have a thorough study made of the whole situation.

There are upwards of 40 ranches all told in Ontario, varying in acreage from 600 to 85,000 acres. Much of this land, however, is in bush and requires considerable capital to develop it to full capacity. While a number of these ranches are being operated with fairly satisfactory results, the majority of them are being conducted in a very small way.

The Government has now under consideration the advisability of carrying on some demonstration or experimental work, in order that methods of housing, feeding, and breeding may be improved upon. In order to do this, the Government has in contemplation the establishment of a combination sheep and cattle ranch at some point where average conditions exist, where accurate records would be kept and results made available for the public. We feel by fully investigating the matter for the public, avenues may be opened up for successful investment that will mean much for the Province of Ontario.

When we discuss these different problems, when we grow pessimistic at the results we obtain, when we feel the year's work has not yielded us as richly as it might, I think it is wise that we should look at the situation to see whether we appreciate how we have been placed in this great land of Canada and the Province of Ontario. As we do so I want to call your attention to-night, and I will trouble you with statistics, dry as they are, in order that we may appreciate our position, and particularly that those in this Province may understand our opportunities, and I am sure you will be convinced that the Province of Ontario will continue for all time as the banner Province of this fair Dominion.

CANADA'S TRADE. First let us look at the trade of Canada as an index of the prosperity of the country, and in giving these figures I am simply giving you round figures.

In the year 1913, the trade of Canada was over \$1,000,000,000. In 1917 the trade was over \$2,500,000,000, or an increase in the last four years of over one and a half billion dollars.

It is interesting to note how much of that was agricultural products, and we find in 1913 the agricultural products and the animal products exported amounted to over \$194,000,000. In the year 1917 these products amounted to over \$659,000,000, an increase of nearly \$465,000,000 in the past four years in the exports of these products alone.

FIELD CROPS. Then let us look at the field crops of Ontario as compared with the balance of Canada. We speak a great deal of the great wheat fields of the West, and we glory in their productions and what they have achieved, but we sometimes forget what Ontario has done.

In 1916 the field crops of Canada amounted to over \$808,000,000, the field crops of Ontario \$191,000,000, or nearly 24 per cent. of the whole of Canada.

Let us not forget that when we are dealing with the field crops of this country we are dealing with the biggest industry in Canada. Recent figures from Ottawa contain the announcement that for 1917 the field crops for Canada aggregate over one billion dollars—the first time the field crops have passed the billion mark.

This would provide for double the amount of the recent Victory Loan and still leave a large balance. It means more than five times the output of the mines of Canada for the same period. This is due, of course, in a large degree, to the high war prices prevailing, but it also indicates a large volume of production. It is also a proof of the power Canada is capable of exerting in the carrying on of this conflict and an evidence of her ability to discharge future obligations.

The past three years have been years of peculiar difficulty for the man on the farm. Weather conditions have been abnormal, and labor conditions most acute. Yet what do we find? Compare these three years with the three years immediately preceding, and during the last three years we have shown an average yearly increase in the different Departments as compared with the previous three years as follows:—

Hay and clover.....	13,000 acres
Field crops, exclusive of hay and clover	86,000 acres
Total	99,000 acres

Aside from this, over a quarter of a million additional acres have been utilized for pasturage. This means that for the three years of the war the farmers have taken off a total of nearly 300,000 more acres than during the three years preceding the war, aside from increased pasturage. Of this, less than 40,000 is accounted for by hay and clover, and the balance by cultivated field crops.

This record is a tribute to the work which the farmers have accomplished under difficulties, and is also an indication of the contribution Ontario has made in the matter of food-stuffs.

BUTTER AND CHEESE, CANADA AND ONTARIO. Then let us look at some figures with reference to butter and cheese. We find the total value of butter and cheese for 1916 was over \$62,000,000, of which our own Province produced over \$31,000,000. In other words, the Province of Ontario produced over a half of the whole of the Dominion.

GARDEN AND ORCHARD PRODUCTS. Then take the garden and orchard products. Again you find for the last year I have, the total output for Canada was over \$31,000,000, and for Ontario over \$13,000,000. Ontario produced over 43 per cent. of all the products grown in the gardens and orchards of Canada.

WEALTH OF ONTARIO. The two great fundamental sources of wealth of any nation are agriculture and mining. To these might be added as a further additional source of wealth, timber. With respect to all these, and particularly to the two I have designated as the fundamental ones, Canada, and Ontario in particular, is greatly blessed, not only for what it has already realized but for the opportunities that lie before it.

AGRICULTURAL PRODUCTION. Canada on the whole produced for the year 1916, in field crops, \$808,000,000, while Ontario produced \$190,000,000.

In butter and cheese, Canada produced \$64,000,000, as against \$31,000,000 for Ontario.

In live stock, Canada produced \$177,000,000, as against \$85,000,000 for Ontario.

In orchards and gardens, \$31,000,000 for Canada, as against \$13,000,000 for Ontario.

247

In other words, these farm products for the years for which I have the figures—unfortunately they are not for the same years, but that will not change them to any great extent—for all of Canada amounted to considerably over \$1,000,000,000, while those for Ontario amounted to almost \$322,000,000. In other words, Ontario produced 30 per cent. of all the products produced in Canada.

MINERAL PRODUCTION, CANADA AND ONTARIO. The total production for Canada in 1916 amounted to \$177,000,000, for Ontario \$80,000,000, nearly half of the whole, and more than double that of the next highest Province of Canada, British Columbia.

FOREST PRODUCTS. In forest products again we take the banner place.

The total forest products of Canada amounts to over \$98,000,000, of Ontario over \$42,000,000. In other words, Ontario's percentage of the whole is over 43 per cent.

AGRICULTURE, MINING, FORESTS. Added together these three products—agriculture, mineral products, and timber—what do we find? That Canada on the whole produced over \$1,000,000,000, and Ontario produced over \$444,000,000. Of these three great basic sources of wealth, Ontario's proportion of the whole is over 40 per cent.

Surely we are living in a favored country in this Province of Ontario, and yet we are only tapping the sources of our natural supply. We have millions of acres of agricultural land yet awaiting the plow, millions of acres of mineral lands that have never resounded to the tread of the prospector, we have timber wealth almost untold to draw upon.

MANUFACTURING IN CANADA. But this country is not only a great agricultural, timber, and mineral country, but a great manufacturing country as well, and what do you find for the figures of 1915? The total output of Canada's factories amounted to over \$1,000,000,000, Ontario's total amounted to over \$718,000,000. In other words, the output of Ontario's factories was over 51 per cent. of that of the factories of all Canada.

So that we have this important asset in this Province, and the question for us is how can we use that to the best advantage.

SCIENCE AND TECHNICAL KNOWLEDGE. We must recognize more and more the importance of science and scientific knowledge in every field of human activity. In no field is this more true than in that of agriculture.

We have shown that in every activity of life when brought together with people of the Old Land we are able to hold our own in every contest in which we are engaged. Then, surely, we are able to apply our brains to the agricultural problems, the food problems, the manufacturing problems, so that we can gain the best results.

CHANGED CONDITIONS CAUSED BY WAR. The trying and momentous days through which we are passing are bound to leave a permanent mark upon the men and women who survive the war. Apart from its material effects in the way of destruction of life and property, the present struggle is bound to leave behind a great change in the national spirit and outlook.

As the war itself is the greatest in history, so will its consequences be the most prodigious. When the war comes to an end, and whether that end come soon or be long delayed, we will be confronted with problems and difficulties such as no people have ever had to face. Upon all of us, and particularly upon those not wholly absorbed in the conduct of the war, rests the obligation to think constantly, strenuously, and soberly of the means and methods required to meet these difficulties.

While our sons and brothers are fighting for the freedom and life of the
N. D.

nation, we must be thinking and planning out the best use to which that life and freedom can be put when they are safe once more.

These are the problems that the Government is in duty bound to face and use every effort to solve. These are problems that can only be solved by the co-operation and hearty sympathy and support of men throughout the whole country. We have a great duty to perform now, and it is time we should show our gratitude for what God has blessed us with, and to use every effort to develop this along the best lines we can.

NECESSITY FOR GREATER PRODUCTION. The great cry to us from across the seas is more food supplies. I cannot take time to discuss that phase of the question as I would like, but you know the cry that comes from the Old Land. You know the warnings you get from day to day that unless there is a greater production of food-stuffs, and unless there is greater conservation, there is bound to be a serious want of food for the men upon the fighting line.

This certainly makes a tremendous appeal to us all to do our duty. Our gallant sons at the front have made the name of Canada famous by their heroism, courage and resourcefulness in the first line trenches.

Generations yet unborn will live more nobly and die more bravely because these men have lived and died bravely, and because these heroic deeds will stir their blood when the story is told of what the Canadians did at Vimy Ridge, at Passchendaele, and other battle fields.

The first line trenches are in France and Flanders, where your sons and mine are fighting with the Hun for the freedom of the world, for the protection of civilization, for the protection of mankind. If that line breaks, your homes, your property is menaced, as is the freedom of the world. If the Western Line breaks, that line upon which the civilization of the world also depends, and the enemy gets through to the coast and are able to establish their guns there, and are able to establish submarine bases there, sooner or later they will cut off Canada and the continent, and sooner or later Great Britain will be cut off from the Allies and the food supplies. But, thank God, that line will never break. (Great applause.)

While that is the first line of trenches, the second line of trenches is on the farms of the Province of Ontario and the Continent of America. Failure in the second line will bring disaster just as surely as in the first line of trenches. The men cannot fight unless they have bacon, beef and bread to maintain them in fighting condition, and if we fail to supply them with these, starvation will do what the enemy guns will never be able to do—defeat the Canadians and the gallant men fighting on the Western Front.

So to-night I am appealing to you, no matter what your difficulties may be, no matter what the sacrifices you have to make, to try and do a little more than you have done in the past.

You say, "I have done all I can." You say you have made every sacrifice you have been called upon, and you do not know where you can do more. All I have got to say is this: You know there is always a land beyond this; that is the inspiration in life, that is what we are living for and what keeps us going. No matter what we have done in the past, there is a little more we can do in the days to come.

Thank God there is a land beyond for those that are true and faithful in their service, and it is this Land of Beyond that we are striving for to-night—something higher and better than we have ever accomplished in the past.

DAIRY AWARDS, WINTER DAIRY EXHIBITION, STRATFORD, 1918.

CLASS 1.

Section 1, September White Cheese.

	Score		Score
1. C. J. Donnelly, Lambeth	98.50	6. L. H. Schneider, Rostock	96.00
2. J. E. Stedelbauer, Vienna	98.00	7. J. T. Donnelly, Sparta	95.75
3. Wm. Morse, Stratford	97.50	8. A. D. Riddle, Lambeth (Won	
4. Wm. Jamieson, Dorchester	96.50	on flavor)	95.50
5. J. W. Carter, Stratford	96.25	9. F. C. Eastman, Arkona	95.50

Section 2, September Colored Cheese.

	Score		Score
1. C. J. Donnelly, Lambeth	97.50	6. E. M. Johnston, Innerkip	96.25
2. Wm. Morse, Stratford	97.00	7. J. T. Donnelly, Sparta	96.00
3. Wm. Jamieson, Dorchester	96.75	8. H. Youn, Listowel	95.75
4. E. L. Abbott, Dorchester	96.50	9. J. W. Robinson, Stratford	95.50
5. W. T. Oliver, Atwood (Won on			
flavor)	96.25		

CLASS 2.

Section 1, October White Cheese.

	Score		Score
1. C. J. Donnelly, Lambeth	98.00	6. H. Hammond, Moorefield)	
2. J. E. Stedelbauer, Vienna	97.50	(Won on flavor)	95.50
3. Wm. Morse, Stratford	97.25	7. H. E. Donnelly, Strafford-	
4. E. M. Johnston, Innerkip	96.00	ville	95.50
5. J. T. Donnelly, Sparta (Won		8. Jos. Skelton, Kintore	95.50
on flavor)	95.50	9. W. T. Oliver, Atwood (Won	
		on flavor)	95.00

Section 2, October Colored Cheese.

	Score		Score
1. C. J. Donnelly, Lambeth	98.00	6. Wm. Loughin, Thamesford.	96.00
2. J. T. Donnelly, Sparta	97.00	7. L. H. Schneider, Rostock (Won	
3. W. T. Oliver, Atwood ...	96.50	on flavor)	95.75
4. Jos. Skelton, Kintore	96.50	8. H. Youn, Listowel	95.75
5. Wm. Morse, Stratford ..	96.00	9. H. E. Donnelly, Straffordville.	95.50

CLASS 3.

Section 1, 56-lb. Box Butter.

	Score		Score
1. Jno. R. Almont, Silverdale ...	97.00	6. Jas. E. Wilson, Forest	93.00
2. J. M. McNamara, Stratford ...	95.50	7. H. A. Clark, Warwick	92.50
3. R. A. Dennis, Strathroy	94.50	8. J. W. Carter, Stratford	92.25
4. W. G. Medd, Woodham	93.50	9. Whyte Packing Co., Brockville	92.00
5. H. C. Misener, Palmerston	93.25		

Section 2, Twenty 1-lb. Prints.

	Score		Score
1. Jno. R. Almont, Silverdale ...	95.50	5. H. A. Clark, Warwick	93.00
2. Whyte Packing Co., Brockville	94.50	6. J. M. McNamara, Stratford ..	92.75
3. R. A. Dennis, Strathroy	93.50	7. W. G. Medd, Woodham	92.50
4. H. C. Misener, Palmerston	93.25	8. H. J. Neeb, Tavistock	92.25

CLASS 4.

Section 1, October, 56-lb. Box Butter.

	Score		Score
1. R. A. Dennis, Strathroy	95.50	6. Whyte Packing Co., Brockville	93.00
2. Jas. H. Ross, Exeter	94.75	7. Mack Robertson, Belleville ..	92.75
3. Jas. E. Wilson, Forest	94.50	8. W. G. Medd, Woodham	92.50
4. W. R. Pollock, Kerwood	94.00	9. H. A. Clark, Warwick	92.00
5. W. G. Jackson, Simcoe	93.25		

CLASS 5.

Section 1, Three Stilton Cheese.

	Score		Score
1. C. J. Donnelly, Lambeth	97.50	4. W. T. Oliver, Atwood	96.00
2. H. E. Donnelly, Stratfordville	97.00	5. Jos. Skelton, Kintore	95.75
3. Wm. Jamieson, Dorchester ...	96.50	6. Wm. Morse, Stratford	95.50

Section 2, Two Flat Cheese.

	Score		Score
1. Wm. Jamieson, Dorchester ..	97.00	6. Jos. Skelton, Kintore	96.00
2. F. C. Eastman, Arkona ...	96.50	7. Wm. Morse, Stratford (Won	Tie 95.50
3. J. T. Donnelly, Sparta ...	96.50	on flavor)	
4. C. J. Donnelly (Won on	Tie 96.00	8. H. Youn, Listowel (Won	95.50
flavor) ..		on flavor)	
5. E. M. Johnston, Innerkip	96.00		
(Won on flavor)			

CLASS 6.

Section 1, 14-lb. Box September Butter.

	Score		Score
1. W. G. Jackson, Simcoe	93.00	3. Jas. E. Wilson, Forest	89.00
2. Jas. H. Ross, Exeter	91.00	4. C. E. Baxter, Toronto	88.50

Winner of Imperial Bank Silver Cup, for highest scoring cheese: C. J. Donnelly, Lambeth.
 Winner of Produce Exchange Silver Shield for highest scoring butter: Jno. R. Almont, Silverdale.

SPECIAL PRIZES.

By the Heller & Metz Co., 22 Cliff St., New York—C. Richardson & Co., St. Mary's, Ont., Canadian Agents for Alderney Butter Color: \$10.00 in cash—To the Butter-maker securing the highest score on butter exhibited in Class III, colored with Alderney Butter Color.—Jno. R. Almont, Silverdale.

\$5.00 in cash—To the Buttermaker securing the second highest score on butter exhibited in Class III, colored with Alderney Butter Color.—Jno. R. Almont, Silverdale.

By C. Richardson & Co., St. Mary's: \$10.00 in cash—To the Buttermaker securing the highest score on butter exhibited in Class IV, colored with Alderney Butter Color.—R. A. Dennis, Strathroy.

\$5.00 in cash—To the Buttermaker securing the second highest score on butter exhibited in Class IV, colored with Alderney Butter Color.—Jas. E. Wilson, Forest.

NOTE.—The winners of the Heller & Merz Co., and C. Richardson & Co.'s Special Prizes will, if required, be expected to take an affidavit stating that they have been continuous users of Alderney Butter Color during the past twelve months.

By the R. M. Ballantyne, Limited, Stratford, Ont., for D. H. Burrell & Co., Little Falls, N.Y., manufacturer's of Chr. Hansen's Rennet Extract and Color: One-Four-bottle Facile Babcock Milk Tester—To the Cheesemaker securing the highest score on September White Cheese, Class I, Sec. 1.—C. J. Donnelly, Lambeth.

One case of Hansen's Cheese Color—To the Cheesemaker securing the highest score on October Colored Cheese, Class II, Sec. 2.—C. J. Donnelly, Lambeth.

By C. H. Slawson & Co., Ingersoll, for D. H. Burrell & Co., Little Falls, N.Y., manufacturers of Chr. Hansen's Rennet Extract and Color: One case of Hansen's Cheese

Color—To the Cheesemaker securing the highest score on September Colored Cheese, Class I, Sec. 2.—C. J. Donnelly, Lambeth.

One Four-bottle Facile Babcock Milk Tester—To the Cheesemaker securing the highest score on October White Cheese, Class II, Sec. 1.—C. J. Donnelly, Lambeth.

NOTE.—All cheese competing for the special prizes offered by the R. M. Ballantyne, Limited, and C. H. Slawson & Co., must be made with Hansen's Rennet Extract and Color. No special cheese required.

By the J. B. Ford Co., Wyandotte, Mich., manufacturers of Wyandotte Dairymen's Cleaner and Cleanser: One finest quality Gentlemen's Silk Umbrella—To the Cheesemaker who is a regular and exclusive user of Wyandotte Dairymen's Cleaner and Cleanser, having the best finished and most stylish looking cheese on exhibition.—H. E. Donnelly, Straffordville.

One finest quality Gentlemen's Silk Umbrella—To the Buttermaker who is a regular and exclusive user of Wyandotte Dairymen's Cleaner and Cleanser, having the neatest and most attractive exhibit of butter.—H. A. Clark, Warwick.

NOTE.—All exhibits (except Stilton, Flat Cheese and 14-lb. Box Butter) are eligible for these two special prizes.

By the Western Salt Co., Courtright, Ont., N. A. Leach, Manager: One barrel Purity Cheese Salt—To the Cheesemaker securing the highest score on September White Cheese, Class I, Sec. 1.—C. J. Donnelly, Lambeth.

One barrel Purity Cheese Salt—To the Cheesemaker securing the highest score on October Colored Cheese, Class II, Sec. 2.—C. J. Donnelly, Lambeth.

One barrel Purity Dairy Salt—To the Buttermaker securing the highest score on fifty-six pound box Creamery Butter, Class III or IV, Sec. 1.—Jno. R. Almont, Silverdale.

One barrel Purity Dairy Salt—To the Buttermaker securing the highest score on twenty one-pound Creamery Prints, Class III, Sec. 2.—Jno. R. Almont, Silverdale.

NOTE.—No special butter or cheese required.

By the DeLaval Dairy Supply Company, Limited, Peterborough, Canada: One Cheese Trier—To the Cheesemaker securing the highest score on September or October White Cheese, Class I, Sec. 1, or Class II, Sec. 1.—C. J. Donnelly, Lambeth.

One Cheese Trier—To the Cheesemaker securing the highest score on September or October Colored Cheese, Class I, Sec. 2, or Class II, Sec. 2.—C. J. Donnelly, Lambeth.

One Cheese Trier—To the Cheesemaker securing the highest score on Cheese exhibited in Class I or Class II.—C. J. Donnelly, Lambeth.

One One-Pound Butter Printer—To the Buttermaker securing the highest score on butter exhibited in Class III, Sec. 2.—Jno. R. Almont, Silverdale.

One Butter Trier—To the Buttermaker securing the highest score on butter exhibited in Class IV, Sec. 1.—R. A. Dennis, Strathroy.

NOTE.—No special cheese or butter required.

By the Parke, Davis & Company, Walkerville, Ont.: One case of Curdalac—To the Cheesemaker securing the highest score on Flat Cheese made with Curdalac, exhibited in Class V, Sec. 2.—F. C. Eastman, Arkona.

One-half Case of Curdalac—To the Cheesemaker securing the second highest score on Flat Cheese made with Curdalac, exhibited in Class V, Sec. 2.—E. M. Johnston, Innerkip.

Three Packages of Startalac—To the Cheesemaker securing the third highest score on Flat Cheese made with Curdalac, exhibited in Class V, Sec. 2.—C. J. Donnelly, Lambeth.

NOTE.—No special cheese required.

By the Imperial Bank of Canada: A Silver Cup—To become the property of the Cheesemaker securing the highest total score, three times, or twice in succession, on two cheese; one cheese either white or colored, exhibited in Class I, and one cheese either white or colored, exhibited in Class II. In awarding this cup the scores of the two cheese securing the highest score in Classes I and II (belonging to the same exhibitor) will be added. In case of a tie, settlement is to be left with judges. Won in 1910 by J. E. Stedelbauer; won in 1911 by R. A. Thompson; won in 1912 by D. Menzies; won in 1913 by R. E. Hastings; won in 1914 by Mrs. O. Cuckow; won in 1915 by J. K. Brown; won in 1916 by P. Callan; won in 1917 by H. W. Hamilton.—C. J. Donnelly, Lambeth.

NOTE.—No special cheese required.

By the Toronto Produce Exchange: A Silver Shield—To become the property of the exhibitor of Butter (except 1-lb. prints and 14-lb. boxes) at the Winter Dairy Exhibition, who shall receive the highest score three times or twice in succession. Won 1917 by R. A. Dennis.—Jno. R. Almont, Silverdale.

NOTE.—Cheese without a bandage shall be considered unfinished, and shall be scored off for finish accordingly.

Cheese on exhibition may be paraffined.

All one-pound print butter on exhibition must be wrapped in plain wrappers.

All October butter must be sent to London Cold Storage by November 10th.

BUTTER GRADING, 1917.

JNO. H. SCOTT, OFFICIAL BUTTER GRADER, TORONTO.

This report covers the work done from May 1st till November 30th, 1917.

The Dairy Branch of the Department of Agriculture secured from the Municipal Abattoir, Toronto, accommodation for grading butter. Splendid storage facilities were provided, as well as good sanitary quarters for doing the work. Enough experimental work had been done in 1916 regarding the use of 14-pound boxes for shipping samples of each churning, and working out details, to know that it was practical for creameries to put up and mark a sample box for scoring purposes. Circular letters were sent out to the creameries in April, explaining the proposition and applications were received from 26 creameries to have butter graded.

Fourteen-pound boxes were furnished by the Department at cost price, as also was stamping outfit, for marking boxes properly and intelligently, so that we would have a uniform system of marking each box of each churning as well as the samples shipped for grading. Samples were shipped by express and express charges paid by the Department. On arrival at the grading station, the samples were first placed in the cooler, at a temperature of about 30 deg., and held always over night or until scored, so that all samples would be under exactly the same condition, as far as temperature was concerned. After scoring, the samples were placed in the freezer at a temperature of from 5 to 10 deg. below zero and held there. They were held in storage according to agreement with the creameries, for at least one month, so that in case of an appeal against the score the sample would be available for re-scoring. A grade certificate was mailed immediately after scoring to the creamery. The score card used is the standard usually used at Ontario exhibitions; viz., 45 points for flavor, 25 for body and texture, 15 for color, 10 for salt and 5 for finish.

The standard of grades used was the same as discussed at Convention a year ago; viz., 92 points and over First Grade, 87 points and under 92 Second Grade, 82 points and under 87 Third Grade, and under 82 off grade or culls.

In scoring the butter the basis used was the grade to which the butter belonged commercially, not from an exhibition standpoint. So that we were not so anxious about the total score of the butter as we were that the grade certificate would show the quality of the butter at the time of scoring. Not what it would be in three or six months time although that is very important and will be taken up later in this report. As there is 45 points given for flavor, defects in flavor were of the most importance and the grade in which the butter was put was most often decided by the flavor, other defects, while important do not enter into the taste so much, and after all it is really the sense of taste that the consumer is governed by when eating butter, and it is to the consumer that we must look for a final verdict.

From the creameries in the regular grading service 3,299 samples were

graded. 82.16 per cent. were placed as first grade, or scoring over 92 points. 28.15 per cent. scored 94 points and over, 17.82 per cent. under 92, or second grade.

In May	12%	scored 94 and over,	65 $\frac{1}{4}$ %	92 to 94,	22 $\frac{1}{4}$ %	under 92.
" June	29 $\frac{1}{4}$ %	" 94	" 53%	" "	17 $\frac{1}{4}$ %	" "
" July	34 $\frac{1}{4}$ %	" "	" 48%	" "	17 $\frac{1}{4}$ %	" "
" Aug.	18%	" "	" 54 $\frac{1}{2}$ %	" "	27 $\frac{1}{4}$ %	" "
" Sept.	25%	" "	" 60%	" "	15%	" "
" Oct.	40%	" "	" 54 $\frac{1}{2}$ %	" "	5 $\frac{1}{2}$ %	" "
" Nov.	4 $\frac{1}{2}$ %	" "	" 72%	" "	23 $\frac{1}{2}$ %	" "

This table shows the month in which the samples arrived at the grading station not the month in which it was made. Thus we find that the greatest percentage of poor butter is shown in August. This is accounted for in the fact that the last ten days of July were extremely hot, but most of butter made in that period arrived at the grading station in August.

In looking over this table it is very noticeable the effect of the weather conditions in the quality of the butter, October month showing the best quality when conditions were ideal as far as feed and weather were concerned.

The most common defects in flavor were "heated," "sour," and "yeasty" flavors, with "fishy" and "rancid" flavors developing in storage. Loose, open texture and weak body were the most common defects in texture with a great number of samples showing excessive free moisture. This does not mean that the butter contained more than the legal standard of 16 per cent. water, but very often shows the opposite, by actual moisture test. Excessive free moisture is a serious defect in butter from a commercial standpoint. It not only makes a "sloppy" or "mushy" textured butter, but is the cause of a great loss in shrinkage to the trade in storage and in cutting out to the retail trade in prints, as the most of our butter is handled to-day. Proper incorporation of the moisture would prevent a great deal of the complaints we hear of short weight in butter when it reaches the dealer.

Next to the sense of taste the color of butter is important to the consumer, not so much the shade of color, unless very high or very pale, but evenness of color is required, and a large percentage of butter shows just a little freckle or waviness that leaves a bad impression even though the flavor may be good, and it would scarcely be wise to place a mottled or streaked butter in first grade, no matter what good qualities it may otherwise possess.

A great variation in salting of butter was noticed, full points were allowed for salt unless salt was gritty or undissolved, each creamery claiming that they are salting for the requirements of the trade to which their butter goes.

Full points for finish were allowed on sample boxes, believing that the butter-makers would live up to the agreement entered into by the creameries when making application for grading service, that is, to finish each box of churning as good as the sample box sent for grading.

The Department asked the creameries not in the grading service, to send in three samples made last week of August, and three the last week in September, for the purpose of getting a general idea of the butter being produced throughout the entire Province and also for the purpose of making further investigations regarding salt and moisture content.

Fifty creameries responded, sending in 259 samples, of this lot 68 per cent. scored 92 points or over, only 6 $\frac{1}{2}$ per cent. scoring 94 or over and 31 per cent. less than 92. Comparing this lot of butter with the season's scoring of creameries in the regular service it is difficult to account for the results.

Taking the whole season's grading of regular creameries through early fodder season, extremely hot summer weather and late fall stable flavors, we find that we had 14 per cent. more first grade and 20 per cent. more scoring 94 points and over than we had from creameries who were not in the regular grading service and from butter made during ideal autumn weather. I am not able to give the solution but the facts are significant.

The quality of this butter was of a varied character, practically all the flavors in the category were represented, as well as the usual variety of textures and colors, 49 per cent. showing defects or unevenness in color, in 10 per cent. salt was gritty or undissolved.

The results of a season's work in grading, receiving butter from all parts of the Province almost have brought to our notice more forcibly than ever before the weakness in Ontario butter trade. There seems to be a large number of creameries in certain sections that are going along from year to year in about the same old ruts making an indifferent quality of butter without any apparent effort toward improvement. They are accepting all the cream they can get and paying the same price for all regardless of quality. Competition between creameries seems to be the main reason why there is not more progress made in regard to quality of cream produced, and until such time as cream is bought and paid for on a quality basis I see no chance for much improvement being brought about from the producers end of the business. Some creameries are grading cream and with splendid results as shown by the quality of butter produced.

There is room for much improvement from the mechanical end of manufacture of our butter. The better incorporation of moisture, better working to clear up the color and the better distribution of the salt are important questions which the men in charge of the churns need to take up.

If I were asked, "Has the butter grading movement justified the expenditure that it has entailed?" I would be compelled to answer that, if discontinued now possibly it would not be worth the cost. However, I think all are agreed that by quality, is the only fair way for butter to be bought and sold. Then if that is true we have made a beginning and laid the foundation, working out some of the details that are necessary in the introduction of any grading system. We are met with criticisms which we are glad to hear, because they are helpful. We hear the dealers criticized because they did not live up to the resolution passed at our last W. O. D. A. Convention at Woodstock. We hear the butter grader criticized because his scores were not always consistent. But we are not complaining because that honest criticism will point out our mistakes and will suggest new ideas that will be helpful for the future.

For 1918 I would suggest to salesmen that they make more use of their grade certificates than they did during the past year, that they offer their butter on grade, so many boxes first grade, and so many seconds and if they meet the dealers in an honest endeavor to sell their butter for what it is worth, I have faith in the men in the trade to believe that they will co-operate with them.

As a great deal of our butter has to be stored during the months when production is greatest in order to provide for winter season of consumption, the keeping qualities of butter are very important. As stated before, the score given is only calculated as a certificate of quality at the time of inspection, still in the interest of the trade and especially the dealer who is holding the butter we would like to see him reasonably well protected regarding quality, and as a means of accomplishing this the introduction of a "special" grade for all butter scoring 94 points or over that had been properly pasteurized would be an assistance along

this line. I have found that some unpasteurized butter that scored as high as 94 points when fresh made, developed "fishy" and other bad flavors in storage. I have not found that occurring when cream is pasteurized, so that I would urge the pasteurization of cream as far as possible when butter is to be held in storage.

During the season of 1917 I again acted as referee in cases of dispute between buyer and seller, regarding quality of butter when it reached Toronto. Decisions were about evenly divided in favor of buyer and seller. I have tried to give decisions in these cases as fairly between man and man as I knew how, and I believe the decisions in most cases, have been well received by both parties.

I have been asked to referee disputes regarding quality between brokers and dealers, but have declined, as that is going into too large a field, and if attempted would lead to an endless amount of work that is of a purely commercial character.

Other phases of the work are being taken up by Mr. HERNs and others on the programme.

A great many important questions regarding Ontario's butter trade are appearing for future consideration. Some of them are of far reaching importance, but one thing is certain that creameries making inferior quality of butter will find it more difficult to compete with creameries that are taking advantage of progressive methods and it is from this fact that we see the hope of Ontario maintaining the prominent place she deserves in the production of good butter.

I might mention that all interested in Ontario's butter trade would rejoice at the very creditable place she took in the butter exhibit at the Canadian National Exhibition. In 1916 two creameries exhibited, both taking prizes. In 1917 over 30 entries. The championship trophy coming to and remaining permanently in Ontario besides a fair share of the prizes in all classes. We hope to see the creamery men take still more interest in this important exhibit in the future.

REPORT OF CHIEF DAIRY INSTRUCTOR AND SANITARY INSPECTOR FOR WESTERN ONTARIO, 1917.

FRANK HERNs, LONDON.

I beg to submit my eleventh annual report. The work of dairy instruction was carried on under much similar methods to that of previous years. The usual Short Course, held in April at the O. A. C. was attended by the instructors and much appreciated.

CHEESE INSTRUCTION REPORT.

CHEESE FACTORIES. One hundred and forty cheese factories received 349 full day visits and 452 call visits by the five cheese instructors.

MILK SUPPLY. Ten thousand nine hundred and sixty-nine patrons (716 less than 1916) supplied milk to the cheese factories. The estimated average per cent. fat in the milk for the season was 3.34 (.03 per cent. less than 1916). The estimated average loss of fat in the whey for the season was .25 per cent. (.02 per cent. greater than 1916). Ninety-eight patrons were visited.

QUANTITY OF CHEESE. There were 29,206,290 lbs. of cheese manufactured in 1916, which is 2,943,171 lbs. less than in 1915.

AVERAGE YIELD AND PRICE. The average number of pounds of milk required to make one pound of cheese was, in 1916, 11.35. The average price received per
8 D.

pound of cheese was \$0.182. This is .29 more pounds of milk required to make one pound of cheese and \$0.0202 greater average price than in 1915. The price received in 1917 is the highest on record and will average over 21c. per pound.

QUALITY OF CHEESE. With the exception of about two weeks in July the quality of the cheese was well maintained. During these two weeks some defective cheese were reported, due chiefly to warm weather conditions. Lack of experience by some makers with rennet substitutes, gave occasional trouble but on the whole the quality was satisfactory. Pure rennet when it can be obtained will give best results but while the present shortage continues, a certain amount of rennet substitutes will have to be used. When using substitutes care should be taken not to set the milk "too sweet" or "too ripe." Under the first mentioned condition the result will be abnormally slow coagulation, soft curds and high milk fat loss in the whey. If the latter practice is followed, coagulation may be secured more quickly but the cheese are almost certain to be close to the acid line and in any case will be "coarse in texture."

MILK SEDIMENT TEST. Two thousand seven hundred and five sediment tests were made and the special cards referred to in a former report were used to good advantage.

FACTORIES HAVING ICE COOL CURING ROOMS, 13, septic tanks for disposal of sewage, 13.

FACTORIES PAYING BY TEST, 32 (10 more than in 1916).

FACTORIES PASTEURIZING WHEY, 59.

FACTORIES MAKING WHEY BUTTER, 5; **CASEIN,** 1.

FACTORIES TURNING CHEESE IN HOOPS, 80.

PROSECUTIONS. Twenty-four patrons pleaded guilty before a magistrate to delivering deteriorated milk to cheese factories. Fines from \$10 to \$50 were imposed; this is 19 less cases of deterioration than in 1916.

ANNUAL AND DISTRICT MEETINGS. From November 1st, 1916, to October 31st, 1917, 77 factory meetings were attended by the instructors and myself. Total attendance, 4,229. There were 14 applications for speakers which could not be met owing to the changes in the railway time-tables.

EXPENDITURE FOR IMPROVEMENTS. One new factory was built at a cost of \$6,000 and \$27,075 was spent in factory improvements.

AVERAGE TESTS OF MILK. With a view to securing further information in connection with the fat content of the milk supplied by the patrons to the various cheese factories, a test was made by the instructors of the milk sent by each patron. These tests included all but two factories. The work required much detail and I wish to express my thanks to the instructors for the competent way in which this work was carried out and also to the factory men for their assistance.

SUMMARY OF 8,857 MILK FAT TESTS AT CHEESE FACTORIES, 1916

Per cent..	2.6	2.7	2.8	2.9	3	3.1	3.2	3.3	3.4	3.5	3.6	3.7	
Tests	102	94	349	351	1,222	852	1,672	1,035	1,288	595	605	185	
Per cent..	3.8	3.9	4.	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5
Tests	211	73	100	26	41	12	10	7	6	4	1	1	2

These tests indicate that the chief variations in the percentage of fat in the milk sent to the cheese factories of Western Ontario is from 2.6 per cent. to 4.2 per cent., or 1.6 per cent.

INSTRUCTION WORK, 1917.—CHEESE.

Instructor and Group.	Factories visited.	No. of patrons.	No. of full day visits.	No. of call visits.	No. of patrons visited.	No. of curd tests.	No. of lactometer tests.	No. of sediment tests.	No. of Babcock tests for adulteration.	Factories making whey butter.	Factories paying by test.	Factories having ice cool curing room.	Factories pasteurizing whey.	Whey fed at factory.	Average per cent. fat in milk for season.	Average per cent. fat lost in whey for season.	New factories.	Cost of new factories.	Estimated expenditure for other improvements.	Total expenditure.
LISTOWEL— R. A. Thompson	30	2,539	75	80	10	0	3,000	0	25	1	12	3	11	2	3.35	.25	0	.....	\$ 1,125 00	\$ c.
STRATFORD— G. M. McKenzie.....	29	2,681	81	93	17	22	6,845	.23	182	1	11	8	18	5	3.43	.26	0	.....	1,125 00	1,125 00
INGERSOLL & WOODSTOCK A. E. Gracey	26	1,593	64	117	32	25	3,350	0	72	1	5	1	12	0	3.23	.26	2	6,000	9,290 00	9,290 00
SIMCOE & BRANTFORD— Geo. Travis.....	21	1,909	48	74	21	20	4,000	2,000	500	2	2	0	4	0	3.35	.26	0	.....	5,470 00	11,470 00
LONDON— T. F. Boyes	34	2,247	81	88	16	34	3,733	682	75	0	2	1	14	0	3.34	.23	0	.....	3,625 00	3,625 00
Totals and Averages ..	140	10,969	349	452	96	101	20,928	2,705	854	5	32	13	59	7	3.34	.25	2	6,000	27,075 00	33,075 00

CREAMERY INSTRUCTION REPORT, 1917.

One hundred and twenty-seven creameries and 98 cream buying stations were given 291 full day visits and 89 call visits, also 124 special visits were made to the cream buying stations by the three creamery instructors. One new creamery was built and two creameries closed. Butter prices during the past season were the highest on record; estimates indicate a decrease in the output of about 12 per cent. compared with 1916.

QUANTITY OF BUTTER. In 1916 Western Ontario creameries manufactured 21,952,948 lbs. of butter. About one-third of the cream to make the $3\frac{1}{2}$ million lbs. of butter turned out by the Toronto creameries was produced in Eastern Ontario. With the addition of 842,735 lbs. of winter butter made at the cheese factories, gives a total production of 22,795,683 lbs. This is an increase over 1915 of 925,441 lbs., instead of a decrease as was anticipated in the fall of 1916 before the actual returns were obtained.

QUALITY OF BUTTER. The quality was well maintained and owing to the comparatively cool season a considerable portion of the cream was delivered to the creameries in much better condition than in some former years. Some cold storage butter developed flavors, although apparently sound when fresh. The development of these flavors could no doubt be prevented to a great extent if the cream was delivered with a lower acidity and pasteurized to a sufficiently high temperature.

PATRONS. Thirty-eight thousand, nine hundred and eighty-two patrons supplied cream to the creameries: the average per cent. of fat of the cream was 29.

MOISTURE IN BUTTER. The average moisture content of 652 samples of butter was 14.75 per cent.; a proportion of these tests was made at each creamery; 67 samples contained over 16 per cent. moisture and were taken from 29 creameries.

SALT. The average salt used and retained in the butter according to 608 salt tests made was 5.1 per cent. and 3.15 per cent. respectively.

TESTING CREAM. Sixty-five creameries used the metric scale for weighing cream samples for testing. There are no creameries now using the oil test.

PASTEURIZATION. Thirty-two creameries (7 more than last year) pasteurized the cream all or part of the time.

COOLER. Sixty-six creameries used a cooler.

CULTURE. Nine creameries used a pure culture.

GRADING. Eight creameries graded the cream for churning and one creamery paid for cream by grade.

SEWAGE DISPOSAL. Eighteen creameries have septic tanks for disposal of sewage.

STORAGE. Forty-two degrees (same as last year) average temperature of storages.

EXPENDITURE. Two new creameries were built at an estimated cost of \$22,200 and \$61,070 was spent on general improvements, making a total expenditure of \$83,270.

ANNUAL DISTRICT MEETING. The 11th Annual Meeting held at Guelph, on December 4th, was largely attended and several important questions of interest to the dairy industry were discussed, including "Larger Appropriations for Dairy Exhibitions in Ontario"; "The Possible Detrimental Effect on the Quality of Ontario Butter by an Increase in the Number of Cream Buying Stations, as Well as the Economic Loss by the Introduction of Another Middleman Between the Cream Producer and the Butter Consumer"; "The Importance of Using Sufficient

Rennet Substitutes in the Making of Cheese"; "The Danger of Setting Milk 'too ripe' and 'too sweet'"; "The Necessity for Determining Upon a Minimum Temperature for the Pasteurization of Cream for Buttermaking"; "The Importance of Collecting Rennets"; "The Provincial Grading Service"; "The Laboratory Control of Butter as to Moisture and Salt Content"; and "The Regulations Governing the Manufacture and Sale of Butter Substitutes."

CREAMERY INSTRUCTION WORK, 1917.

	Instructors.			
	D. McMillan.	J. B. Smith.	G. Rickwood.	Total
No. Creameries visited	45	46	36	127
No. cream buying stations.....	23	13	62	98
No. of patrons.....	16,501	12,216	10,265	38,982
Pounds of butter made, 1916				22,795,583
Gain over 1915.....				925,341
No. full day visits	117	110	64	291
No. call visits.....	17	19	53	89
No. visits to cream buying stations	29	13	75	117
No. patrons visited.....	86	.....	42	128
Average per cent. fat in cream	28	28	31	29
No. tests made for moisture in butter....	223	250	179	652
Average per cent. moisture.....	14.4	14.5	15.3	14.75
No. samples showing over 16%	21	16	30	67
No. creameries these samples taken from..	11	5	13	29
No. of tests made for salt in butter.....	218	250	140	608
Average per cent. salt used	4.75	5.2	5.4	5.1
Average per cent. salt left in butter	3.02	3.2	3.23	3.15
No. of Creameries Cream Collecting	45	45	31	121
“ “ Separator .....	.....	1	5	6
“ “ using Babcock test.....	45	46	36	127
“ “ Oil test.....	.....	.....	.....	.....
“ “ Scales (Metric) ..	29	17	19	65
“ “ Pipette	16	28	17	61
“ “ Cooler	25	24	17	66
“ “ Pasteurizer.....	12	9	11	32
“ “ Culture .....	.....	1	8	9
“ “ Grading cream.....	.....	1	3	4
“ “ having poor water supply .....	.....	.....	2	2
“ “ using septic tank for sewage	1	6	11	18
Average temperature of storage.....	43	36	47	42
Expenditure { New Creameries	(1)	(1)		
General	\$ 2,200 00	\$20,000 00	.....	\$22,200 00
Improvements.....	30,225 00	15,125 00	\$15,720 00	61,070 00
Totals	\$32,425 00	\$35,125 00	\$15,720 00	\$83,270 00

EXPERIMENTS IN GRADING CREAM BY SAMPLE. In my last report the results of work on this point in 1916 were given, with the statement that the work would be repeated during the past season.

In carrying out these experiments the instructors accompanied the cream haulers over certain cream routes, took notes of, and graded the various lots of cream supplied by the producers. Samples of the cream were taken by the hauler in the usual way, using the ordinary sample bottle. No special precautions were taken to change the usual methods of handling the samples.

On arrival at the creamery these samples of cream were graded by the buttermaker and the instructor directly from the sample bottles, without referring to the previous grade of the cream made by the instructor at the farm.

Three chief points were in view (1) how many of the samples would be placed at the creamery by the instructor in the same grade in which the cream was placed at the farm. (2) Would the buttermaker place the samples in the same grade as did the instructor. (3) Should special precautions be taken to keep the cream samples cool.

One hundred and one samples of cream were graded; 78 samples graded 1st. Twenty-three samples graded 2nd. One sample graded 3rd.

Practically 85 per cent. of the samples were placed at the creamery in the same grade, by the buttermaker and the instructor, in which the cream was graded at the farm.

In 89 per cent. of the samples the buttermaker's grade agreed with that of the instructor.

The conclusions drawn from these experiments were that:—

(1) The results are practically the same as those obtained last year.

(2) If reasonable precautions are taken in keeping the sample bottles clean and the cream samples cool during transit, until arrival at the creamery, there is every reason to believe that under Ontario conditions, the grading may be done closely enough by sample for all practical purposes.

A summary of the experiments revealed practically the same relation between the grade of the cream, average temperature and percentage of fat, as did the work of the previous year, i.e.:

Average Temperature of all Samples	Average per cent. Fat in all Samples
1st Grade.....66.1 degrees	1st Grade 28.5 %
2nd Grade 72.7 degrees	2nd Grade.....25.2 %
3rd Grade.....	3rd Grade.....22. %

BUTTER GRADING SERVICE. The Ontario Department of Agriculture decided to establish a Provincial Grading Service, beginning with a few creameries and gradually increasing the facilities until a permanent grading service is established or to prove to the satisfaction of all concerned that a butter grading proposition is not practicable under Ontario conditions. The Government made an appropriation to finance the work and early in April a circular letter was sent out by the Director of dairy instruction to all the creameries in Ontario, notifying them that a grading station would be located at the Municipal Abattoir, Toronto, under the supervision of the chief dairy instructor for Western Ontario. Excellent cold storage facilities were available at the abattoir and a suitable room was turned over to us in which to do the grading. It was also intended that should a sufficient number of creameries enter the service, a second station would be opened at London.

A simple form of agreement was drawn up to be signed by the creamery men who wished to have butter graded and the necessary details in connection with score forms, grading certificates, brands, sample boxes, etc., were arranged and on May 1st, the Toronto Station was opened to receive butter samples. Twenty-six creameries applied for the service and a report of the actual work of grading will be given by Mr. Scott, who was appointed official grader.

The grader also refereed between the original seller and buyer of creamery butter when a dispute regarding quality arose and he was requested by the seller and buyer to do so. This part of the work was aside from the regular grading service.

Owing to market conditions which were perhaps more than in any previous years favorable to the selling of second grade butter, there was probably not the same incentive for creamery men and dealers to sell and buy butter on grade as was expected and therefore, there was probably not as much enthusiasm on the part of the dealers to live up to the resolution passed last winter by the members of the Produce Exchange, a copy of which resolution was discussed at the last Convention.

However, it is believed that the point has been established that a grading plan is practicable under Ontario conditions, provided the service is supported by the creamery men and dealers of the Province. No doubt the creameries that availed themselves of the grading service last season were well repaid and it is believed that the dealers appreciate the efforts put forth by the Department to meet the situation. There is no question that a service of this kind will eventually be a necessity to the Ontario creamery industry and may probably apply more especially at this time since the introduction of oleomargarine will likely make the selling of second grade butter a more difficult problem than has been the case during the past several years. It is likely that a class for "specials," scoring 94 points or over will be adopted for next season, but a provision will be made that the cream from which the butter is made for this grade must be pasteurized.

The grader cannot be responsible for the development of flavor in cold storage, and any score can apply only to the condition of the butter at the time the scoring is done. The samples are, however, kept at the grading station for four weeks after scoring for reference. Time for further discussion of this subject together with that of cream grading has been provided for on the programme and I earnestly invite the fullest co-operation of the creamery men and dealers to make the coming year's work a success. I wish here to express my sincere appreciation of the assistance rendered by the creamery men and dealers and in this connection the services of Mr. Scott.

EDUCATIONAL BUTTER SCORING. The Director of dairy instruction authorized me to send out during the early part of August, a circular letter to all the creameries in the Province, other than those engaged in the grading service, suggesting that they forward to the grading station during the last week of August and September respectively, samples of butter from three churnings made during each of these two months. The object was (1) to have these graded for a comparison, (2) to note the uniformity in the general make-up of the butter, the salt and moisture content. It was thought that considerable data might be secured with which to work out plans for greater uniformity in the manufacturing of butter. It is well known that the standardization or the turning out of a more uniform grade of butter is a necessity in Ontario if we are to take advantage with the best results of a future export trade in butter.

A brief summary of this work follows: 241 churnings were tested for salt and moisture. The average moisture for all churnings was 14 per cent., and the average salt, 2.9 per cent.

Moisture.				Salt.			
1 sample	contained	9 to 10%	moisture	2 samples	contained	.9 to 1%	salt
6 samples	"	10 to 11%	"	59	"	1 to 2%	"
8	"	11 to 12%	"	79	"	2 to 3%	"
30	"	12 to 13%	"	68	"	3 to 4%	"
66	"	13 to 14%	"	26	"	4 to 5%	"
70	"	14 to 15%	"	6	"	5 to 6%	"
46	"	15 to 16%	"				

Grading.

15	churnings	graded	special	(94	points	or	over)
147	"	"	first	(92	points	or	over but under 94)
79	"	"	second	(87	"	"	" 92)

From this work it will be seen that there is room for greater uniformity in the manufacture of Ontario butter, and the suggestion is made that it might be possible to work out a system in connection with the grading service which will not only give to the buttermakers along with the "grade score cards" the percentage of salt and moisture which the butter may carry, but also some information in regard to the moulds and yeast which the butter may contain and which has a definite bearing upon the keeping qualities of the butter in storage. Whether or not such a plan would meet with approval, of course, remains to be seen but I believe it is worth considering.

SOME FURTHER NOTES ON THE USE OF PEPSIN IN THE MANUFACTURE OF CHEESE.

GEO. H. BARR, CHIEF, DAIRY DIVISION, OTTAWA.

Owing to the scarcity of rennet extract in 1916 many of the cheesemakers were obliged to use pepsin as a coagulant. Fortunately, it was found that as good cheese could be made with pepsin as with rennet extract, but it was generally admitted that there had been a greater loss of fat in the whey when using pepsin.

Knowing that pepsin would have to be used to a very large extent in 1917, it was necessary that an effort be made to overcome this defect. With this end in view, work was commenced at the Finch Dairy Station on February 23rd, and continued until May 10th. During that period ninety-one vats were set with the following coagulants: Armour's Soluble Powdered Pepsin, Cudahy's Granular Pepsin, Cudahy's Liquid Pepsin, Curdalac, Renzyme, Hansen's Rennet Extract, and Videon's Rennet Extract.

Experiments were made (1) with larger quantities of pepsin than are usually used, (2) setting the milk at different temperatures, and (3) allowing a higher acidity than usual to develop in the milk before setting. The following table gives a summary of the work:—

LOSSES OF FAT IN THE WHEY AT THE FINCH DAIRY STATION FROM FEBRUARY
23RD TO MAY 10TH, 1917.

Coagulant	No. of vats	Average Setting Temp.	Rate per 1,000 lbs. milk	Setting to Dipping	Per Cent. Fat in Whey
		deg.	oz.	hr. min.	
Pepsin	{ 40	85.3	4.50	2 57	.218
	{ 16	88.2	4.30	2 47	.249
Rennet	{ 12	85.5	4.80	2 50	.209
	{ 4	88.5	5.30	2 47	.252
Pepsin	{ 12	85.7	3.90	2 05	.268
	{ 6	87.8	4.50	1 55	.306
*Pepsin	{ 4	85.0	4.25	2 29	.196
	{ 4	90.5	4.25	2 29	.228
*Pepsin	{ 4	85.0	4.00	3 08	.194
	{ 4	85.0	5.75	3 08	.171

* Same milk divided into two vats.

These figures show quite plainly that setting the milk at a temperature slightly under 86 deg. with a sufficient quantity of pepsin to coagulate the milk ready to cut in less than 30 minutes gave practically as good results in the whey as when rennet extract was used.

I would again repeat what I said at the Convention last year; use enough pepsin to coagulate the milk ready to cut in about 25 minutes. Cutting should not be commenced until the curd will break clean over the finger, but there did not seem to be any advantage in allowing the curd to get overly firm before cutting.

I am quite convinced that it requires greater skill on the part of the cheese-maker to make cheese successfully with pepsin than with rennet extract, but by setting at the proper temperature and handling the curd carefully immediately after cutting, there need be no greater loss of fat in the whey than if rennet extract were used.

We were requested to make tests of the following coagulants during the past season: Cudahy's Granular Pepsin, Cudahy's Liquid Pepsin, and Armour's Rennase, which is a liquid preparation also. All these were found equal in strength to Armour's Soluble Powdered Pepsin or Hansen's Rennet Extract. Two samples of rennet extract received proved very weak. It required 51¼ ounces of one sample and 14½ ounces of the other to coagulate the milk ready to cut in the same time as milk set with four ounces of Hansen's Rennet Extract.

This shows the danger of buying any brand of coagulant that has not been carefully tested.

USE OF ACTOLAC. Actolac is a liquid prepared by Parke, Davis & Co., Walkerville, Ont. In appearance it resembles water and has practically no flavor.

We found that by adding 2 ounces of Actolac per 1,000 pounds of milk just before setting, and then using the usual quantity of pepsin, the time from setting to cutting was lessened about six or seven minutes, or if 2 ounces of Actolac per 1,000 pounds of milk were added before setting and the quantity of pepsin reduced 1 ounce per 1,000 pounds of milk, the curd would cut in practically the same time as it would if the full amount of pepsin had been used. For instance, from August 1st to 20th, twenty vats set with Armour's Pepsin at the rate of 4 ounces per 1,000 pounds of milk, cut in an average of 28 minutes; ten vats between August 27th and September 5th in which 2 ounces of Actolac and 3

ounces of Armour's Pepsin per 1,000 pounds of milk were used, cut in an average of 28½ minutes.

The use of Actolac did not appear to affect the loss of fat in the whey in any way, nor could we see any difference in the quality of the cheese.

I would say if there ever came a time when it would be absolutely necessary to conserve the supply of coagulants for cheesemaking, Actolac could be used with safety.

SOME REASONS WHY THE PRICE OF DAIRY PRODUCTS HAS ADVANCED.

H. H. DEAN, PROFESSOR OF DAIRYING, ONTARIO AGRICULTURAL COLLEGE, GUELPH.

Every effect has a cause. Many persons feel the effects of advancing prices for milk and its products, but know not the cause. The object of this address is to give, so far as possible in a brief address, some of the chief causes for increased cost of dairy products.

In Canada, the unit of value measures in the dollar. The whole question might be dismissed by saying that the dollar has decreased in purchasing power; or that dollars are more plentiful than food in the form of milk, butter, and cheese. Many of us find it difficult to realize that a dollar has varying values, especially when it comes to buying food. Dollars we do not need, but food we must have.

Let us look at the question more in detail and see if we can discover why foods, particularly dairy foods, are dear:

In the first place we need to remember that practically all food comes out of the soil, through the agency of plants and animals. But these of themselves do not produce food, except in very limited quantities. In order to get the largest and best results in food production, it is necessary for man to apply labor and skill to the soil, in the growing of plants, and afterwards in feeding these plants to animals. Dairy products require an extra amount of labor and special skill. An American writer says: "There is but a single method of procedure by means of which we can be certain that the nutrition of our people will be safeguarded, that is to maintain our dairy industry at its present extent of development. Actually it should be considerably increased, but it must not be permitted to decline. If it does, the United States will not long maintain its position of supremacy in the fields of human endeavor requiring both physical and intellectual vigor." The same is true for Canada, but how can this be done unless our dairy industry be supplied with plenty of skilled labor on the farm and in the factory? Also, this labor must be suitably rewarded. The same writer goes on to say: "Milk production cannot rest upon a philanthropic basis, but must be a paying industry. I want to emphasize that the public must allow the price of milk to advance so that the industry is profitable to the dairyman." In the foregoing we have the essence of the causes of advancing prices for milk, butter, and cheese. Dairying must be profitable for milk producer, manufacturer and distributor, or they will go out of the business, and under present conditions of great opportunity in other lines the question of making dairying profitable is doubly important. One of the first causes of advanced prices for dairy goods is the increased difficulty of securing suitable labor and the increased cost of all kinds of labor. Other fields are beckoning to dairymen, some of them very attractive as to hours and wages.

A second cause of advancing prices is the increased cost for feed, cows, capital, and overhead expenses on the dairy farm. The consumer finds it difficult to realize

that oats have advanced from about 40 cents per bushel to nearly double that price in the last three years. Barley, oil-cake, cottonseed meal and bran have advanced in nearly the same proportion. About the only feeds which have not "gone-up" in price are grass, hay and silage, and the reason for this is that as a rule these are not sold from good dairy farms, and except hay, have not market values like grain and other feeds used in milk production.

Cows have advanced at least fifty per cent. in the last year. Good grade cows now sell for \$125 to \$150, and we saw a report recently where an exceptionally good grade cow sold for over three hundred dollars. Pure-bred cows have not advanced in the same ratio as have grades, but registered cows having good records to "back them" command very high prices, while dairy sires with "good backing" for several generations sell for unheard of prices. One sale of such was reported last year at \$53,200 for a bull calf under six months old.

Owing to the increased demand for capital to finance war loans and guaranteed money enterprises of various kinds, farmers are finding it more difficult to secure capital for legitimate expansion and improvements on the farm. One Ontario farmer reported in December, 1917, in an agricultural paper as follows: "I have ten hogs about 100 lbs. each. Since my corn is so poor, I decided to buy shorts to finish them. I got the shorts for \$44 per ton wholesale. I have to borrow the money from the bank at about 8 per cent. to pay for them. I think this 8 per cent. business is pretty hard on the poor man. There are lots of times that the poor man would buy both hogs and feed, and other things for that money, if he could get the money on reasonable terms." It would seem as if one of the ways in which dairy products might be hindered from further rise in price would be to furnish cheaper money to the farmer. Farm finance has not received the attention of capitalists which its importance deserves. Too often the farmer has been regarded as an "easy mark" for the modern Shylock. The bad effects of such a policy have not been realized until the present world-food-shortage brought it to the front.

Expenses for machinery needed in growing and harvesting crops, for filling silos, for cans to deliver milk, for food and clothing, and for every other operation on the farm have advanced out of all proportion to the advance in price received for dairy products, and hence it is no wonder that some farmers are growing discouraged and selling their cows. All these things have tended to cause an advance in the price of milk and the foods manufactured from milk.

But there are other things which have caused an increase in prices of milk and its products. Among these may be mentioned the extra cost for labor and supplies in manufacturing milk into condensed and powder milk, cheese and butter. To mention only a few items: From a dairy-supply firm, the Dairy department of the O.A.C. purchased in December, 1913, two gallons of cheese coloring for \$3.50; in December, 1917, we paid \$3.75 for one gallon of cheese coloring from the same firm. In December, 1913, we purchased six gallons of rennet for \$11.70; in December, 1917, we paid \$7.55 for one gallon of rennet. In 1915 cotton used in cheese-making was bought at 5½c. per yard, and starched cheese caps at \$7.50 per 1,000; in December, 1917, the cotton advanced to 18c. per yard and the cheese cap circles to \$12 per 1,000. In 1915, sulphuric acid for milk-testing was three cents per pound, now it is six-and-one-half cents per pound. The list could be extended to great length, showing that nearly every item that enters into the manufacture of dairy foods has increased from 100 to 350 per cent.

Another cause for the increased price of milk is the more stringent regulations of Boards of Health in producing and distributing milk. Cleaner cows,

cleaner stables, the pasteurization of milk—all these cost money and add to the price which the consumer must pay for these safeguards of public health. And they are worth the extra price, as nothing is so important as good health. Children especially, who depend so largely on milk, must be protected in every possible way. A recent report by the Massachusetts Board of Health says: "The beneficent role played by the maligned cow, even under the most adverse conditions, in stepping into the breach between life and death when mothers fail, has received all too scanty emphasis."

One unnecessary cause of increased cost of milk in cities is the faulty method of distribution. The city milk business must find some better method of distributing milk than in having ten or twelve milk wagons passing over a street which can as well be served by one wagon, at one-half the expense. Municipal control of the milk supply, similar to the plan followed for supplying water, gas, electric light, sewage disposal, etc., would seem to be the best solution. Failing this, the milk-sellers should divide the city into districts, and have one distributor only for each district. With a standardized product and a watchful Board of Health, there is no reason why this system should not result in a lessened cost of at least one cent. per quart to consumers, and a similar supply of good milk to all.

Dairy farming and the manufacture of dairy products are among the foundations of national prosperity. The American authority (Dr. McCollum), referred to at the beginning of this address, says: "The efficiency of a people can be predicted with a fair degree of accuracy from a knowledge of the degree to which they consume dairy products. . . . I venture to assert that it is the milk, and butter and cheese, and not the meat, which has the good influence on the promotion of the virile qualities of the people." Yet we find consumers cheerfully paying 30 to 50 cents per pound for beef and bacon, and grumbling about the price of cheese at 25 to 30 cents a pound, whereas one pound of cheese is worth two pounds of beef, has practically no waste, does not require cooking, and does not readily spoil. Milk and its products are among the cheapest foods which can be purchased at the present time. We shall never again see "5 cent milk," "20 cent butter," nor "15 cent cheese." Other foods may get lower in price as measured by the dollar standard, but the fine dairy products, never. A nation that turns to cheap substitutes like "oleo," "filled cheese," and "vegetable milk" has taken the first step towards degeneracy, because these do not contain the "vitamines" so essential for making a strong race of people.

Milk is a cheap food as compared with other foods. "Milk at 12c. per quart represents 699 calories. Steak at 35c. per pound represents 280 calories. Chicken at 33c. gives 283 calories, veal at 35c. gives 272 calories, salmon at 20c. gives 300, and salt mackerel at 35c. gives 330 calories."—Prof. Pearson, III., U.S.A.

Let us then encourage the dairy farmer, and the dairy manufacturer, who work long hours, and run considerable risks for capital invested, by paying cheerfully the extra prices asked for milk, butter and cheese, thus insuring a good supply of "life meat" for home and export markets; and, also, that we may retain the best men in the business. The dairy industry has now a great many, and wishes to increase the number of clean, honest, dairymen. No others are wanted. It pays to pay a good price for a good article of food.

THE WAR AND THE DAIRYING INDUSTRY.

J. A. RUDDICK, DAIRY COMMISSIONER, OTTAWA.

While the dairying industry has been affected in more ways than one by the terrible conflict which has now raged for over three years, and some of its branches have even been threatened with serious interruption, it has so far been found possible to avert any serious difficulty, and, on the whole, I think it may be said that the industry has profited rather than suffered through the effects of the great war. But even though there may be a measure of increased profit arising out of the abnormal conditions which prevail, it is not a matter to gloat over, because we hold some things to be of far greater importance than mere material gain. To some of you possibly the war has already meant the loss of sons, brothers, or other dear friends, while many of you are still filled with anxiety as to the fate which awaits loved ones who have gone forth on the great crusade. These are matters of greater concern to you than the price of cheese or any other product of the farm. Nevertheless, we must "carry on" and stand behind those who are at the Front, and for that reason it is as well to examine the situation and be prepared to make the best of it.

Apart from the general rise in prices, one of the first effects of the war on the dairying industry was to cause

A SHORTAGE IN THE RENNET SUPPLY.

One did not have to be very far-seeing to realize that the supply of rennet for cheesemaking purposes was bound to be interfered with soon after the outbreak of war. Raw rennets, from which the extract is made, were for many years obtained chiefly in Hungary and Bavaria, and latterly in Russia. Needless to say, these sources of supply have completely dried up, and for rennet extract, we must now depend on our own raw material. The stock of rennet extract on hand was sufficient for the season of 1915, but towards the close of that season it became evident that the end of the old supply was in sight.

It is unnecessary for me to refer at any length to the means which have been taken to find a substitute, or of the success which has attended the use of pepsin for that purpose. Mr. Barr has given you all the details from time to time in circulars and in addresses at the conventions relating to the tests and demonstrations at the Finch Dairy Station. It is very gratifying to be able to assure the cheesemakers that the quality of our product has not deteriorated since the use of pepsin became quite general.

With regard to the supplies for another year, we have a reasonable assurance that if the cheesemakers will be content with sufficient to carry them a few weeks at a time and not try to stock up for the season that there will be no difficulty about meeting all our requirements. The Department of Agriculture holds as a reserve, in case of actual shortage, a limited supply of Armour's Soluble Powdered Pepsin, which is being sold to cheese factories at cost under certain conditions.

I would add just one word of caution, and it is this: that cheesemakers should not under any circumstances use any brand of coagulant unless they know that it has been thoroughly tested by some competent authority. We have made it as plain as possible to all vendors of coagulants or substitutes for rennet that the Dairy Branch is ready to stand between the cheesemakers and any irresponsible dealers to see that no inferior article is foisted on the industry, and that we will

always be ready to make careful tests of any new coagulant which may be offered for sale, and to take steps to prevent its sale if it proves to be unsatisfactory.

Every effort should be made to help out the situation by saving the stomachs of calves which are slaughtered at the age when their stomachs are useful for this purpose. The local manufacturers of rennet extract are prepared to take all that are offered. As near as I can determine, there is no occasion for alarm over this matter, but we should not neglect any source of supply in sight.

The substitution of pepsin for rennet was effected with so little trouble, and without any of the factories experiencing any real shortage, that it is doubtful if it is generally realized how near the cheese industry was to a serious interruption. Without pepsin 75 per cent. of the factories would now be closed.

At the present moment, we are confronted with a real shortage in

THE SUPPLY OF TINNED SHEETS FOR DAIRY APPARATUS AND UTENSILS.

The large tinned sheets used in the manufacture of cheese vats and factory milk cans have always been procured from the United Kingdom. In the interest of the supply of munitions the export of all such material is prohibited, except under license, and has been for some time, with the result that the stock of tinned sheets in Canada has become practically exhausted. The shortage is likely to be rather a serious matter if it cannot be relieved. The Department of Trade and Commerce has, during the past year, been making every effort through the High Commissioner to have the Ministry of Munitions grant a license for the export of a sufficient quantity of these large sheets to meet the requirements of the dairying industry in this country for next season. Last September the writer, as Dairy Commissioner, brought the matter to the attention of Mr. Jas. McGowan, the British member of the Cheese Commission, who on his return to the Old Country was to lay the matter before the Ministry of Food, in view of the possibility of interference to some extent with supplies of cheese if some relief were not granted. Mr. McGowan has carried out the suggestion, but he writes that he is doubtful of having any success. I also brought the matter to the attention of Mr. A. J. Mills, of the British and Allied Mission in the United States, and the influence of the Canadian Food Controller has been enlisted. In fact, every known means has been resorted to in order to secure a supply of these sheets.

The persistent refusal of the Imperial authorities to release this material is an intimation to us that the situation with regard to steel in the United Kingdom is very serious, and it begins to look as though we may have to do without them. It may be possible to secure sheets of a certain size in the United States, and I understand that some of the sheet metal firms in this country are endeavoring to arrange for the tinning of large medium-sized sheets in this country. In any case, it will be advisable to conserve as far as possible the vats and milk cans which would ordinarily be replaced by new ones. Under these circumstances, no apparatus should be discarded which can possibly be made use of. Some factories may have spare cheese vats, or there may be milk cans not in use. If so, the facts should be advertised so that others in need of these things may know where to get them. This Association might open a sort of information bureau for that purpose.

I suppose it would be possible to make a cheese vat out of small tin plate. In the early days of the industry the large sheets were not used. All vats had a seam at the corner all the way round, and the bottom was made of comparatively small pieces, with seams running lengthwise as well as crosswise. The manufacturers will know better than I do if this is feasible.

(The substance of the speaker's remarks regarding the work of the Cheese Commission will be found on page 36.)

CONDENSED MILK.

The war has created a very big demand for condensed milk, and some feeling has been aroused over the favourable position of this article as compared with cheese. The complaint from cheese manufacturers and patrons of cheese factories is based on what they consider to have been an unfair competition, with the price of cheese held at one level while the price of condensed milk is allowed to boom unrestrainedly. The question is a somewhat local one, and is confined chiefly to those districts where the condensaries are located, but it may not be out of place to discuss it here very briefly.

With regard to the complaints, it seems to me that they are based on a false assumption. In the first place, the difference in price is not due to the fact that the price of cheese is limited, but because the demand for condensed milk was so great that, no matter how high the price of cheese went, the condenseries would have been able to exceed it and get the milk just the same.

Of course the obvious reply is that condensed milk should have been dealt with in the same manner that cheese was. That seems reasonable, but there were difficulties in the way, some of them apparent perhaps, but others not so well known to the public at large. The trade in condensed milk, in its international aspect, is quite different from that of cheese. The United Kingdom is practically the world's market for cheese. We sell 99 per cent. of our surplus in that market and New Zealand has no other outlet. Every country with an export cheese trade looks to Old England as her chief if not her only customer.

In the case of condensed milk it is quite different. We have been exporting about one-half of our output to the United States, only about one-third to the United Kingdom, and the remainder to some 25 different countries. The difficulties of control are obvious. You may be sure the matter has not been overlooked, for I happen to know that it has been, and no doubt is yet, under consideration.

I do not suppose that there is any kick coming from those milk producers who are so fortunately situated as to be able to take advantage of the high price being paid for milk at the condenseries, and it would be a sort of "dog-in-the-manger" policy for the patrons of cheese factories to object, seeing that control of condensed milk prices would not give them any more for their cheese. It is the owners of cheese factories who are hardest hit and have a grievance if any one has. There is this to be said, however, if the demand for condensed milk is to be a permanent one, then the passing of the cheese factory in certain districts is a matter of evolution and is bound to be upsetting to some interests as evolution always is. The manufacture of cheese is only a means to an end, that end being the profitable use of milk. If a better means is offered to reach the same end, and the right thing to do ordinarily is to take advantage of it. There is an element of doubt, however, in the present case, for it is more than probable that the demand for condensed milk will fall off after the war, and in that event some of the milk now going to the condensaries will revert to the cheese factory or some other outlet. If that occurs the disorganization of the cheese factories which is now going on will be a serious disadvantage.

There is another aspect of the situation which is of importance in the present circumstance, and that is the lack of by-products from condensed milk for stock-raising. It is possible that the value of the skim milk and whey is somewhat over

looked when comparing returns for the milk alone. There is still another thing to be considered, which is: that when the condensed milk business monopolizes any particular territory the necessity for paying a premium to draw the milk from the cheese factory or the creamery will cease to exist. I am not prepared to say that the milk condensaries will take advantage of such a situation, should it arise, but experience teaches us that it generally happens that way. These are some of the things which should be considered by those who are tempted to desert the old cheese factory.

COLORED CHEESE.

It seems quite probable that as a result of the experience of the past season the making of colored cheese may be discontinued entirely. With the uniform price for both kinds there was certainly no inducement to make colored, although the Commission was glad to get what was offered. According to our records there were 348,524 boxes of coloured cheese, as against 1,511,713 of white. I am rather surprised that there were so many.

The war has also interfered with the supply of caustic potash, which is used as the solvent in the best brands of cheese colouring. Caustic potash in pre-war times came from Germany. It is quite possible that some other sources may be discovered, if not already, but lacking caustic potash it is necessary to use caustic soda, which is inferior, and, as I understand, cheese-colouring made with soda is only about half the strength of that which is made with potash.

While the authorities in England have been asking for a larger proportion of colored cheese, I have not heard any very serious complaint, and if the colouring of cheese were done away with entirely I do not think there would be any permanent bad effect on the cheese industry. The present situation seems to afford an opportunity of discarding what has been in reality a useless practice.

CHEESE VATS.

It might be possible to make a wooden cheese vat. That may sound rather odd at first; but I do not see any difficulty in making it watertight, or milk tight, and having some device something the same as the new cream apparatus for raising the temperature, something that can be put in and out, some dispensable arrangement with a steam pipe running into a larger jacket with water surrounding it. You could not very well turn the steam directly into the milk and whey. That, of course, would be very cumbersome and expensive, but it would be better than nothing. I would just throw out that suggestion, as I think this is probably one of the things that is going to bother us more than anything else during the next year.

THE PROVINCIAL GRADING SERVICE FROM THE STANDPOINT OF THE CREAMERY OWNER.

MR. WM. WADDELL, KERWOOD.

It is generally known that the creameries of Ontario are not making a butter of as high a quality as those interested in the success of the butter industry would wish.

In looking for a reason for this several things have been discovered that tend to lower the standard of quality, and probably nothing has been found that has

so great an effect in this direction as the keeping of cream for too long a period under improper conditions, and of these conditions possibly the greatest evils are caused by holding cream at too high a temperature, in surroundings in many cases not altogether sanitary.

For some years a campaign of education has been carried on to induce the farmers and others interested to improve these conditions by cooling the cream at once to a lower temperature, washing separators and other utensils used oftener and more thoroughly, but this seems to have had only a partial effect, as these conditions have not been followed as they should have been.

During the past season our Provincial Government, under the auspices of the Dairymen's Associations, have introduced another method, which means the emphasizing of the instructions previously given, and urge the parties interested by showing them how these conditions, maintained or neglected, may be the means of affecting their returns, materially or otherwise. I have reference to the grading system for butter. I will not here explain the method, as I think most creamery men have had it very well outlined by the Secretary of the Association.

I can scarcely conceive of anything more satisfactory to a creamery owner, or operator, than to have every churning of butter scored, and recorded, by a capable, efficient and disinterested man appointed for this purpose. The creamery man may be as good a judge of butter, but he is not in nearly as good a position to place his butter as the official scorer, who is a competent man else he would not hold the position. He is giving his whole time to this work, and for that reason should be better qualified. He has the opportunity of comparing different lots of butter and of comparing each lot with the requirements of the market, he has also the opportunity of noting the keeping quality of the different grades of butter, and from the very nature of his work soon becomes still more efficient.

Then, too, it provides a medium for the sale of butter as between buyer and seller. The owner can sell his butter and ship it forward in confidence that he will get a square deal, which he otherwise sometimes doubts, if the buyer is to be the only judge, while the buyer can safely accept the butter on the score, relieving him of considerable suspicion, if the quality should not be up to the mark. While there may sometimes be a slight difference of opinion as to quality, neither buyer or seller are apt to suffer by selling according to grade.

I speak with some degree of assurance on this point. During the past season I sold a lot of eighty-five boxes of butter to a certain buyer, and sent it forward. On arrival at its destination, this firm had it scored by their experts and wrote me saying they had this butter scored and the score was 89 points, making it second grade, and stating that the price would have to be reduced one cent a pound from the price agreed upon. I presume he did not think of any other person having scored this butter. I at once wrote saying that I also had this butter scored by the official appointed for that purpose, and the lowest score on any churning in the lot was 93 points, and the best way out of the difficulty would be to send me a cheque for the full amount. A cheque in full came by the next mail, with no comment, proving to me that it was a good thing in this case to have had the butter graded.

The system also works good in two ways: first, forward toward the market and the buyer. The buttermaker is always striving to have his butter score as high as possible, watches carefully every churning, and has a tendency to induce him to take more pains to have all utensils clean in order that no offensive flavor may find its way into the butter. If to-day's report gives any off flavor, he looks at once for the cause, and seeks to remove it; if a little greasy he may work the next lot a little less; if a little salty, use a little less salt; if the salt is not dissolved the

fault may be in the salt, in the working, or in the moisture content; if in the packing or package, he at once looks for the defect and seeks to remove it. It is a daily check and keeps the maker constantly on the alert.

Then it works back towards the patrons. The maker argues if I am to make a high score on my butter I must have good cream, and at once begins to inquire into the quality of cream being received, and if any defects are found seeks to overcome them, leading in time to a system of some kind of cream grading.

The objection may be raised that it takes too much time to put up a box of butter from each churning for scoring purposes. We thought this before we tried it, but we found it a simple matter when we were used to doing it.

From the experience I have had with the grading system, I would strongly advise every creamery to adopt it for the coming season, by doing so you will be enabled to raise the standard of quality of your own butter, and by doing this will increase the percentage of good butter in Western Ontario: by this means you will be helping yourself and performing a patriotic duty as well.

THE PROVINCIAL BUTTER GRADING SERVICE FROM THE STAND- POINT OF THE BUTTER DEALER.

I. W. STEINHOFF, TORONTO.

When asked to discuss with the members of this Association the results of official grading of creamery butter from the dealer's standpoint. I was conscious of opening a very live and important subject which would probably be subject to a good deal of criticism, and my first impulse was to decline the honor. However, the subject is a very proper one for discussion, and as I was one of the prime movers in getting Government grading started I felt that I could not afford to shirk any service which the Committee arranging the Convention programme considered me capable of performing, and will therefore submit some observations of my own, and some conclusions drawn from the experiences of the general trade in the very important market of the city of Toronto, toward which I solicit your sympathetic consideration.

First, it is a great pleasure to repeat, after the trying inaugural season, what was stated by a number of your members from the platform at the Convention last year at Woodstock, namely, that your Association and the Government were very fortunate in the selection of a man to perform this work. It was very important during the early and trying stages of the new system that the work should be not only well done, but that it should be so performed and presented to both manufacturers and merchants handling the butter as to inspire their confidence and support. In this connection it is hard to conceive of a man better qualified and adapted to the position than Mr. John M. Scott. The merchants have found Mr. Scott a capable, fearless, courteous and very painstaking grader, using the utmost care to render accurate judgment and give clean cut unbiased decisions.

After one season's experience with only a portion of the creameries in Western Ontario being graded, I am justified in stating that the merchants are unanimously of the opinion that it has worked a decided benefit to the entire creamery interests in the improvement of the quality that has taken place, and hope to soon see all creamery butter sold on a graded basis according to quality with Government certificates attached.

It is felt, however, that the creamerymen have not taken full advantage of this system to apply the benefit to their individual creameries. I refer more particularly to the fact that the butter has not been sold on a quality basis after being graded. For instance, creamerymen in selling their butter have followed the old system too much of selling all their butter at one price instead of separating the No. 1 from the No. 2 class after being graded and trying to set a price for each grade. Possibly both buyers and creamerymen are at fault in not carrying out this system, but it is an acknowledged fact that the creamerymen turning out first grade butter will not get the reward they are entitled to until they separate one grade from the other and sell them at a graded price, a higher price being paid for the No. 1 than for the No. 2. In placing this question before the Toronto merchants at a very recent meeting of the Toronto Produce Exchange I found that the merchants were prepared to give this system their cordial support, so that it will be up to the creamerymen to co-operate next season upon this point.

It was quite noticeable during the past season that butter arriving in Toronto bearing the marks of having been graded created at once a favorable impression, and it is hoped that for next season a very much larger proportion of the creameries will adopt the grading system.

If there is any criticism to offer on the past season's work it is that Mr. Scott gave what might be considered a rather liberal grading to all butter scored, thus placing butter in first grade class which would not compare with the first grades received from our Western Provinces or the Eastern Townships, and I think you will readily see that if the makers of first grade butter are to receive their reward in the way of price which they are entitled to, say of one cent per pound or over, the butter must be of sufficiently superior grade to command the higher price in competition with butter from the other Provinces, otherwise the maker of the poorer butter will be getting a benefit to which he is not entitled.

Another point which has been brought out in one or two cases which came under my own observation was that the body of the butter itself when sold did not turn out to be up to the standard shown in the grading of the samples taken from the same butter, but in one instance at least I think this is traceable to the fact that the butter was held some time before being sold, in a room which was not sufficiently cold. This point will need to be well looked into, and it is the unanimous feeling of the dealers that all butter should be sold weekly while it is fresh and practically in the same condition as the samples submitted for grading.

The merchants also feel that by closer co-operation between the creamerymen and the marketing end, better results could be obtained, and would suggest a system of weekly shipments of all creamery butter to a good cold storage in Toronto and weekly auction sales on a graded basis similar to what is done in Montreal. At Montreal, Quebec butter is shipped weekly to a suitable cold storage in Montreal, and graded after its arrival by a Government grader, and then sold by a co-operative society through the Produce Branch of the Montreal Board of Trade. Such decided benefits have been derived to the factorymen that it is thought a similar system would be very beneficial in selling the butter coming to Toronto. Will your members therefore give this matter careful consideration and possibly a committee might be appointed to bring in a report or recommendation.

RESOLUTION.

Moved by R. W. STRATTON, seconded by Mr. ROBERTSON, that this Association is in sympathy with any movement tending to support the creameries in a change of business policy which will, under present conditions discontinue the methods of supplying cream cans free of charge to cream shippers.

BUTTER GRADING.

L. A. GIBSON, DAIRY COMMISSIONER FOR MANITOBA, WINNIPEG.

I wanted to say a word in regard to the grading. We have been grading cream and butter now for four years, and it has done more for the improvement of the quality than any other thing we could do. I do not know where we would be to-day if it were not for the grading of the cream and butter. Five years ago we were importing into the Province of Manitoba 55 carloads of creamery butter to take care of our own market requirements. To-day we are exporting or have exported from Manitoba 100 carloads of creamery butter, about 75 cars coming east and the balance to the coast market. Five years, four years, or three years ago we had a very poor reputation for our creamery butter in the Province of Manitoba, and if it was not for the grading of the cream and butter, I do not know what position we would be in to-day. I have spent part of the last two weeks coming in contact with the trade that handles the bulk of our butter, and I have received very favorable reports on the quality. If we had not been grading, I know that our butter would sell for two or three cents a pound less than it does to-day, so you are on the right road, and just keep at it. You cannot accomplish it all in one year or two years or four years, but you will see a great deal of improvement from year to year.

In Manitoba we have a difference of 2c. between No. 1 and No. 2 grade, and 3c. between No. 2 and No. 3, that is a difference of 5c. between the 1st and 3rd grades. There is an incentive there for the farmer to produce a special grade cream, otherwise you cannot blame the farmer if he does not give you the cream you want when you are paying the same price for all grades. If the creamery men do not get the improvement which they should they are largely to blame themselves for the system. The same thing applies in regard to butter. In Manitoba we are also advocating the better pasteurization of cream. We heat it to a temperature of 165 or 170 deg. and hold it for ten minutes. The low acidity in cream which we get by grading and by good pasteurization, we figure has revolutionized the dairying business in the Province of Manitoba so far as butter is concerned.

A MEMBER: Tell us something about cream buying stations in Manitoba.

MR. GIBSON: Three years ago we had something over 100 cream buying stations, and without a doubt they were a curse to the industry in that Province. The quality was inferior, in fact, I only know of one station from which any first class cream came. We saw that it was necessary for us to provide some regulations to govern these stations, and we have now pretty stringent regulations governing the sanitary conditions of these stations, properly equipped buildings with cement floors, proper drainage and washing facilities.

The cream has to be held at a low temperature. Those regulations which were got through the Legislature at that time made the cost of fitting up these

stations between \$5,000 and \$6,000. Consequently, we were able to reduce our buying stations down to about 22. I kept a man on the work all last summer, who got these stations in good shape and they are complying with the regulations. I feel that is another thing that has helped us out in the quality of our butter. We were getting a lot of the cream through those buying stations, and we only got second and third grade cream from them.

REPORT OF COMMITTEE ON RESOLUTIONS, 1918.

(1) Resolved, that we, the members of this Association desire to express our appreciation of the hearty reception given the members and delegates by the citizens of the City of Stratford. We also desire to thank the Mayor and Council for their kindness in furnishing the free use of the City Hall for the Convention and the Market Building for the Dairy Exhibition.

(2) We desire to express our appreciation of the addresses given by the various speakers which have contributed to the success and educational value of the Convention and we extend to them our sincere thanks for their assistance.

(3) The thanks of the members of this Association are hereby tendered to the Canadian Salt Co., Windsor, through their general manager, Mr. E. G. Henderson, for the very handsome badges presented by the company to the members of this Association.

(4) We wish to thank the Press for the excellent reports published by them of this Convention and express our appreciation of their assistance.

(5) The thanks of this Association are hereby tendered to the Toronto Produce Exchange; Heller & Merz Co., New York; C. Richardson & Co., St. Mary's; The R. M. Ballantyne Co., Limited, Stratford; Geo. E. Booth, Ingersoll; D. H. Burrill & Co., Little Falls, N.Y.; The J. B. Ford Co., Wyandotte, Mich.; The Western Salt Co., Courtright, Ont.; The DeLaval Dairy Supply Co., Ltd., Peterboro, Ont.; The Parke, Davis Co., Walkerville, Ont.; The Imperial Bank of Canada, and Ryrie Bros., Toronto, for the special prizes donated for the Winter Dairy Exhibition.

(6) We wish to express our appreciation for the silver cup, donated by the Canadian Salt Co., for the special June section for creamery butter at the Canadian National Exhibition.

(7) That this Association is in sympathy with the plan for the butter grading service put into effect last season by the Dairy Branch of the Ontario Department of Agriculture and believe if continued this will stimulate and encourage a permanent grading system for creamery products.

(8) That as dairymen we are under great obligation to both the Provincial and Federal Departments of Agriculture for assistance rendered the dairy industry and we wish to tender our sincere thanks and express our appreciation of the work done by these Agricultural Departments in promoting the agricultural interests of the Province and of the Dominion.

(9) That this Association believes it to be in the best interests of both producer and consumer of dairy products, to immediately upon the conclusion of the war, rescind the present Federal Order-in-Council, which allows as a war measure only, the importation, manufacture and sale of oleomargarine in Canada and respectively petition the Federal Minister of Agriculture to, through the Federal Government, again put into force the restrictions against oleomargarine as they appear in the Dairy Industry Act. All of which is respectfully submitted.

ADDRESS.

MR. BOUSKA, PRESIDENT AMERICAN DAIRYING ASSOCIATION.

The best thing to do with the old tin cans that are almost worn out is to have them re-tinned. The work consisted in taking off the bottoms and putting on new bottoms, straightening them out and re-tinning. I know some creameries that have their own re-tinning plants and re-tin their cans.

Another thing is to keep your cans in such a condition that they will not have to be re-tinned or discarded and new ones bought. That consists mainly in cleaning them properly, sterilizing and drying them. These are very simple things, and yet the creamery men do not do them very well. When I speak of cans that have not been properly cleaned, I do not have in mind the filthy can spoken of by someone who is trying to scandalize the creamery industry. I mean bacteriologically clean. The can that will look ordinarily bright and clean is not always clean. There are two important things in this treatment of cans, one is to get them dry so that they would not rust and give out in a short time. If they are dried they will last much longer, and the other thing is if they are well sterilized they will dry better and they will keep the cream better. Not only is the cream in an unsterilized can liable to develop undesirable flavors, but it appears, according to the investigations of eminent bacteriologists that the microbe organization which occurs in the summer and causes the cream to foam are transmitted to that cream by unsterilized cans. These bacteriologists made a study of the bacteriological condition of cans in various American creameries, and they ascertained that in those creameries in which there was a great deal of foam on the cream and where the creamery operators were complaining of loss through the foam, the running over of the cream out of the cans, it was found that the cans were not properly sterilized. In those creameries where there was not much foamy cream in sight and where the operators were not complaining of loss of cream through the foaming and running over, the bacteriological condition of the cans was excellent.

Now then, how should a can be cleaned and dried and sterilized? The first thing to do is to get the cream out of the can, and that is not thoroughly done. It appears to me that there are very, very few creameries in Canada that get the cream off the lid, and the cream that is wasted and the butter fat wasted in that way would amount to enough butter fat to last a family of Germans a long time. There is no saving of time in leaving this cream on the covers of these cans, because they have to be finally cleaned anyway. The thing to do is to remove this cream by the processes that are convenient, and so that this cream can be used in making butter. Either scrape it off by means of a brush or a rubber mop, or steam it off. That being done it is easy to wash the cans and sterilize them in hot water, and when the can is hot it is more easily dried. The drying of cans can be accomplished by inverting them over an air blast which in a small plant can be produced in a very simple way by means of a blower, like a blacksmith's blower, propelled by means of a belt from a shaft.

Let me again express my sincere pleasure in being here in Canada and meeting with you and listening to your programme and testing some of your good dairy products.

After fraternal greetings from Mr. Alex. McKay, President of the Manitoba Creamerymen's and Cheesemakers' Association, and from Mr. W. A. McKay, of Nova Scotia, the Convention adjourned.

THE DAIRY SCHOOL, O. A. COLLEGE, SESSION 1918.

The Dairy School Classes at the Ontario Agricultural College for 1918 were not quite so well attended as in 1917, which was to be expected on account of so many young men being drafted into the army. The three months' course had an attendance of twenty-four as compared with thirty-five the previous year; the Ice-cream and Soft Cheese Class had but three, while in 1917 there were thirteen; the Cow-testing class numbered twenty-six, or one less than last year. The four weeks' Farm Dairy Class had eight students, making a total of sixty-one. There was no Instructors' Class this year, its place being taken by a Dairy Conference in the Spring of 1918, which was well attended.

The Lecturers and Instructors for the year were:

H. H. DEAN, B.S.A. Professor of Dairy Husbandry.
A. L. GIBSON, B.S.A. Lecturer in Dairy Chemistry.
R. FINKELSTEIN .. Lecturer in Dairy Bacteriology.
T. J. MCKINNEY .. Demonstrator in Cheddar Cheesemaking.
W. H. SPROULE Demonstrator in Milk and Cream Testing.
G. TRAVIS Demonstrator in Hand and Power Cream Separators.
D. McMILLAN Demonstrator in Creamery Buttermaking and Ice-cream.
MISS BELLE MILLAR. Demonstrator in Farm Buttermaking, Soft and Fancy Cheesemaking.

Mr. W. H. Sproule of the Dairy Staff enlisted in the Air Force during the spring of 1918.

Not much change was made in the various courses except that of the Farm Dairy, which was shortened to four weeks on account of labour scarcity on dairy farms. This seems to be a necessary change until times become normal.

Cash prizes to the value of \$90 were given by the three leading Dairy Cattle Breeders' Associations for the best judges of Ayrshire, Holstein and Jersey Cattle. This created among the students a good deal more interest in cows, which, after all, are the foundation stones of the dairy industry.

Several dairy manufacturers and dealers also donated cash prizes for general proficiency students, and for best makers of butter and cheese, and skill in preparing market milk.

These prizes will be offered again during 1919. Ladies will also be admitted to the factory course next year, as there is a demand for women to test milk and cream, wrap butter, and do other suitable work in connection with creameries and cheese factories. The scarcity of men is creating a good demand for women to help in the manufacture of cheese and butter.

It is also expected to give special attention to milking machines for the next dairy classes. Some of the manufacturers have volunteered to send experts to the College during the term to give special instruction to Dairy School students. This ought to be very helpful to those taking the Dairy Courses, as milking machines are becoming more necessary on dairy farms.

The high prices for milk, cheese, butter, and condensed milk make the outlook for dairying very hopeful for the next few years, and Ontario dairymen ought to be prepared to take full advantage of this favourable condition.

H. H. DEAN.

EASTERN DAIRY SCHOOL, KINGSTON, 1918.

Officers and Staff.

Director—GEORGE A. PUTNAM, B.S.A., Toronto.
 Superintendent—L. A. ZUFELT, Kingston.

Staff of Lecturers and Instructors.

L. A. ZUFELT Dairy Lectures.
 W. T. CONNELL, M.D. Professor of Dairy Bacteriology.
 W. O. WALKER, M.A. Professor of Dairy Chemistry.
 J. H. ECHLIN Instructor in Cheese Making.
 CHAS. F. LINN Assistant in Cheese Making.
 J. A. CRAIG Instructor in Butter Making.
 W. G. GARDINER Assistant in Butter Making.
 J. BURO Instructor in Separators.
 GEO. H. BARKER Instructor in Milk Testing.

There was a marked falling off in attendance this year compared with former sessions. Of the 39 students who registered, 20 took the entire course and wrote on the final examinations. The regular course of instruction, which has given such excellent results in the past, was adhered to as usual.

The one week's course for the Dairy Instructors of Eastern Ontario was attended by the entire staff, 18 in number.

A small amount of research work was again undertaken by Mr. G. G. Publow and myself, a report of which has already been presented.

EASTERN DAIRY SCHOOL CREAMERY.

Owing to the extraordinary high price paid for cheese at the beginning of last season a number of our regular patrons decided to try the cheese factories. As a result our make of butter was not as large as we had hoped. These patrons who left us were also disappointed, as the returns obtained by them were considerably less than would have been the case if they had continued with the Creamery. I am pleased, however, to report that they have returned to us again "perfectly cured." Unless something unforeseen occurs, our output of butter promises to be considerably larger for the incoming season.

Total butter for year ending December 31st, 1917	101,644 lbs.
Total receipts	\$43,354 05
Average price received per lb. of butter	38.75c.
Average price paid patrons per lb. of fat	48.98c.

ANNUAL REPORT
OF THE
LIVE STOCK BRANCH
DEPARTMENT OF AGRICULTURE
ONTARIO
1917

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO:
Printed by A. T. WILGRESS, Printer to the King's Most Excellent Majesty
1918

Printed by
WILLIAM BRIGGS
Corner Queen and John Streets
TORONTO

TO HIS HONOUR SIR JOHN STRATHEARN HENDRIE, C.V.O., a Lieutenant-Colonel
in the Militia of Canada, etc., etc., etc.,

Lieutenant-Governor of the Province of Ontario.

I have the pleasure to present herewith for the consideration of Your Honour
the Report of the Live Stock Branch of the Department of Agriculture for 1917.

Respectfully submitted,

W. H. HEARST,

Minister of Agriculture.

TORONTO, 1918.

CONTENTS.

	PAGE
LETTER OF TRANSMISSION	5
ONTARIO STALLION ENROLMENT BOARD	5
ONTARIO PROVINCIAL WINTER FAIR	6
STALLION ENROLMENT	12
Certificates of Enrolment and Inspection	13
CO-OPERATIVE CAR SHIPMENTS	15
INCORPORATED POULTRY ASSOCIATIONS	18
CANADIAN SWINE BREEDERS' ASSOCIATION	19
Hog Cholera: DR. TORRANCE	20
Production and Application of Anti-Hog Cholera Serum: FRANK F. HAWKINS.....	24
Address: H. S. ARKELL	29
ONTARIO SWINE BREEDERS' ASSOCIATION	33
President's Address: JOHN I. FLATT	34
Constitution of the Ontario Swine Breeders' Association	34
ONTARIO BERKSHIRE BREEDERS' ASSOCIATION	37
ONTARIO LARGE YORKSHIRE BREEDERS' ASSOCIATION	38
CANADIAN SHEEP BREEDERS' ASSOCIATION	39
President's Address: LT.-COL. R. McEWEN	40
Address: H. S. ARKELL	41
ONTARIO SHEEP BREEDERS' ASSOCIATION	47
President's Address: JAMES DOUGLAS	48
Address: T. REG. ARKELL	49
Constitution of the Ontario Sheep Breeders' Association	52
ONTARIO HORSE BREEDERS' ASSOCIATION	55
President's Address: WM. SMITH	56
Constitution of the Ontario Horse Breeders' Association	59
DOMINION CATTLE BREEDERS' ASSOCIATION	62
Constitution of the Dominion Cattle Breeders' Association	62
EASTERN CANADA LIVE STOCK UNION	65
Constitution of the Eastern Live Stock Union	65
Address: DR. RUTHERFORD	67
WESTERN ONTARIO POULTRY ASSOCIATION	70
Constitution of the Western Ontario Poultry Association.....	70
WESTERN ONTARIO SEED GROWERS' ASSOCIATION	72

Annual Report of the Live Stock Branch

1917

TO THE HONOURABLE W. H. HEARST,

Minister of Agriculture.

SIR,—I hereby transmit the Annual Report of the Live Stock Branch for the year 1917. It contains the financial statement of the Ontario Provincial Winter Fair for the year 1917; report of Ontario Stallion Enrolment Board; report of co-operative shipments of pure-bred live stock; financial statements and lists of officers of the Live Stock Associations; addresses delivered at annual meetings of the Live Stock Associations, and list of members of Ontario Live Stock and Seed Growers' Associations.

Faithfully yours,

R. W. WADE,

Director.

ONTARIO STALLION ENROLMENT BOARD.

Chairman LIEUT.-COL. R. McEWEN, London.
JOHN GARDHOUSE, Weston.
F. C. GREENSIDE, V.S., Guelph.
PETER CHRISTIE, Manchester.
Secretary R. W. WADE, Parliament Buildings, Toronto.

Ontario Provincial Winter Fair

Following are a number of comparative tables of attendance, gate receipts, and entries for a series of years; also the regular annual statement of receipts and expenditures for the year ending January 31st, 1918:—

ATTENDANCE.

	1912	1913	1914	1915	1916	1917
Friday				1,195	} 4,287	1,794
Saturday			2,550	3,214		
Monday	3,206		5,827	7,063	7,985	5,330
Tuesday	6,391	8,210	11,723	11,629	8,228	8,994
Wednesday ..	12,235	15,327	12,128	12,612	12,470	13,812
Thursday ..	9,587	13,180	5,050	6,915	8,711	8,022
Friday	3,590	4,266				
Total ..	35,009	40,983	37,278	42,628	41,681	37,952
Gate Receipts	\$3,689 50	\$4,622 40	\$4,219.40	\$4,363.00	\$4,504.00	\$4,959 45

COMPARATIVE STATEMENT OF ENTRIES, 1910-1917

—	1910	1911	1912	1913	1914	1915	1916	1917
HORSES:								
Clydesdale	141	164	128	202	144	171	140	158
Shire	17	12	11	10	6	7	8	5
Percheron			48	48	35	28	27	32
Hackney	18	21	13	27	27	44	22	35
Standard-Bred.....	17	16	12	11	14	33	28	36
Thoroughbred	14	8	6	17	16	12	31	22
Pony	6	15	13	13	14	30	12	20
Heavy Draft	35	38	35	45	31	51	34	24
Saddle Horses								6
	248	274	266	373	287	376	302	338
BEEF CATTLE:								
Shorthorn	36	39	34	47	44	62	82	74
Hereford	21	16	12	13	13	27	19	43
Aberdeen-Angus	8	6	7	11	6	19	27	27
Galloway	13	4	6	4	8	10		
Grade or Cross	51	48	44	58	83	83	67	31
Amateur Class	62	36	31	21	40	57		
Export Steers	10	5	6	6	9			
Dressed Carcasses ...	17							
Inter-County Baby Beef								3
	218	154	140	160	203	258	185	178
DAIRY CATTLE:								
Shorthorn	1	1	2	6	4	6	4	5
Ayrshire	10	22	19	16	17	53	41	36
Holstein	26	34	37	34	27	72	34	39
Jersey	6		3	14	13	4	24	19
Grade	5	5	8	9	11	11	11	6
	48	62	69	79	72	146	114	105

COMPARATIVE STATEMENT OF ENTRIES, 1910-1917.—Continued.

	1910	1911	1912	1913	1914	1915	1916	1917
SHEEP:								
Cotswold	52	54	43	37	52	62	65	56
Lincoln	38	45	45	21	44	36	25	45
Leicesters	44	30	25	37	38	33	31	35
Oxford-Down	32	55	35	35	52	56	25	59
Shropshire.....	31	36	41	40	55	61	51	81
Southdown	26	54	38	52	63	50	51	56
Dorset Horn	19	17	15	16	18	26	42	21
Hampshire and Suffolk	8	14	11	18	19	35	28	34
Grade or Cross	72	66	69	65	90	63	71	70
	322	371	322	321	431	422	389	457
SHEEP CARCASSES:								
Cotswold	13	16	10	9	14	14	7	7
Lincoln	9	9	11	5	11	6	4	3
Leicester	14	5	7	7	6	7	3	4
Oxford-Down	10	14	3	9	12	11	4	6
Shropshire	11	6	8	8	14	13	7	8
Southdown	9	14	10	11	16	9	3	3
Dorset Horn	11	8	7	6	9	6	5	6
Hampshire and Suffolk	1	3	4	2	4	5	4	6
Grade or Cross	33	31	30	25	43	11	42	33
	111	106	90	82	129	92	79	81
SWINE:								
Yorkshire	66	61	40	62	62	72	60	57
Berkshire	71	70	42	67	36	60	48	80
Tamworth	31	30	17	22	22	36	24	41
Chester White	19	22	18	26	23	40	30	37
Any Other Breed ...	} 58	30	26	18	8	34	45	15
Grade or Cross				39	31	48	.....	.....
Bacon Hogs, Pure Breed	31	24	16	16	19	40	24	23
Bacon Hogs, Grade	20	18	9	14	17	.....	.....	.....
Carcasses, Pure Breed.	23	21	11	12	19	34	24	17
Carcasses, Grade ...	17	17	8	14	13	.....	.....	.....
Butcher Hogs .....	.....	.....	.....	.....	.....	23	15	11
Carcasses, Butcher Hogs	.....	.....	.....	.....	.....	22	14	11
Farmers' Sons, Special	.....	.....	.....	.....	.....	6	2	7
	336	293	187	290	250	415	286	299
SEED:	148	138	186	269	337	331	374	252
POULTRY:								
Fowls	3,542	3,577	3,296	3,416	3,311	4,198	4,092	4,518
Turkeys and Water Fowl	449	379	298	385	378	346	396	462
Pigeons	443	455	435	255	474	558	663	872
Pet Stock	48	18	38	17	28	46	18	25
Utility Pen	13	18	18	11	13	20	31	59
Selling Class	331	323	251	274	147	229	82	.....
Dressed Poultry	178	273	159	250	228	185	208	166
Laying Hens.....	.....	.....	.....	.....	.....	.....	.....	11
	5,004	5,043	4,495	4,608	4,579	5,582	5,490	6,113
JUDGING COMPETITION:								
Regular	250	293	242	309	250	195	124	145
Inter-County Teams	.....	.....	.....	.....	.....	54	63	60
	250	293	242	309	250	249	187	205

72 HOUR DAIRY TEST, ONTARIO PROVINCIAL WINTER FAIR, GUELPH, 1917.

Cat. No.	Prize.	Name and age of Animal.	Lbs. Milk.	Fat.		Solids, not Fat.		Lbs. S.N.F.	Points for S.N.F.	No. Days Milking.	Points	Total Point.	
				%	Lbs.	Points.	L. R.						%
<i>Shorthorn, 48 Mos. and Over.</i>													
522	1st	Royal Mysie's Girl.....	177.9	3.5	6.226	155.65	35	9.62	17.114*	51.342-	25	0	206.992
521	2nd	Fancy Rose.....	122.8	4.35	5.34	133.5	36	10.087	12.387-	37.16*	17	0	170.66
<i>Shorthorn, Under 36 Mos.</i>													
525	1st	Butterfly Beauty.....	87.5	3.8	3.325	83.125	35	9.7	8.487	25.462	11	0	108.587
<i>Ayrshire, 48 Mos. and Over.</i>													
532	1st	Lady Jane.....	250.6	3.45	8.645	216.125	32.0	8.86	22.20	66.60	27	0	282.725
528	2nd	Queen of Springbank.....	171.7	4.35	7.47	186.75	32.0	9.09	15.61	46.83	29	0	233.58
537	3rd	Pearl of Balquido.....	176.5	4.1	7.24	181.0	32.0	9.025	15.93	47.79	29	0	228.79
529	4th	Craigielea Nina.....	172.4	4.1	7.07	176.75	35.0	9.75	16.81	50.43	22	0	227.18
536	5th	Hume's Haugh Lassie.....	150.3	4.85	7.29	182.25	31.0	8.96	13.47	40.41	28	0	222.66
526	6th	Scottie's Nancy 2nd.....	162.2	3.9	6.325	158.125	32.5	9.1	14.76	44.28	43	1.3	203.705
534	7th	Blossom of Hickory Hill....	128.9	5.0	6.445	161.125	33.0	9.5	12.245	36.735	13	0	197.860
<i>Ayrshire, 36 Mos. and Under 48.</i>													
538	1st	Brookside Lady.....	147.1	4.55	6.69	167.25	33.0	9.3875	13.809	41.427	44	1.4	210.077
542	2nd	Lola of Springbank.....	146.0	3.9	5.694	142.35	33.0	9.225	13.468	40.404	11	0	182.754
540	3rd	Beauty's First of Hillhouse.	145.2	3.8	5.517	137.925	34.5	9.575	13.902	41.706	11	0	179.631
539	4th	Brookside Jessie.....	134.0	4.1	5.494	137.35	33.0	9.275	12.428	37.285	39	0.9	175.535
544	5th	Lassie of Hickory Hill.....	109.4	4.5	4.92	123.075	33.4	9.497	10.359	41.079	12	0	164.154
541	6th	Phyllis of Craigielea.....	140.3	3.35	4.70	117.5	33.5	9.212	12.924	38.772	59	2.9	159.172
<i>Ayrshire Heifer, Under 36 Mos.</i>													
545	1st	Scottish Victoria 2nd.....	130.2	4.25	5.53	138.25	33.0	9.312	12.124	36.372	35	0.5	175.122
547	2nd	Rose of Montrose.....	130.4	3.7	4.825	120.625	32.0	8.925	10.638	31.914	60	3.0	155.539
546	3rd	Rose of Craigielea.....	104.1	4.2	4.37	109.305	35.0	9.8	10.2	30.605	26	0	139.910

<i>Holstein, 48 Mos. and Over.</i>													
566	1st	Rolo Mercena De Kol	218.1	3.5	7.633	190.8375	35	9.625	20.992	62.976	30	0	253.814
567	2nd	Queen Butter Baroness	217.7	3.4	7.402	185.05	33.5	9.225	20.083	60.249	19	0	245.299
572	3rd	Dixie Rose	191.2	3.9	7.457	186.425	34	9.475	8.6412	54.3486	13	0	240.774
568	4th	Grace Colantha Posch	193.5	3.3	6.3855	159.637	34.5	9.45	18.286	54.758	12	0	214.395
564	5th	Rose Teake Alberta	190.2	2.95	5.611	140.275	35	9.488	18.046	54.139	24	0	194.414
562	6th	Roberta Stamboul Morine	154.5	3.7	5.7165	142.912	36	9.925	14.333	42.999	22	0	185.911
<i>Holstein, 36 Mos. and Under 48.</i>													
576	1st	Duchess of Norfolk	195.7	3.55	6.947	173.675	33.5	9.26	18.122	54.366	11	0	228.041
574	2nd	Royalton Korndyke Jewel	175.3	3.25	5.697	142.425	30.5	8.44	14.795	44.385	17	0	186.81
573	3rd	Mariorie Pasma	143.7	3.45	4.958	123.93	35.5	9.737	13.992	41.998	52	2.2	168.140
<i>Holstein, 24 Mos. and Under 36.</i>													
586	1st	Pontiac Abbecker Beets	172.7	3.6	6.217	155.425	34	9.4	16.234	48.702	40	1	205.127
581	2nd	Lady Tensen Abbecker	163.7	3.7	6.057	151.425	31	8.675	14.201	42.603	26	0	194.028
579	3rd	Pauline Posch Mercena	175.3	3.2	5.696	140.24	35	9.55	16.741	50.223	10	0	190.463
585	4th	Pontiac Posch	147.8	4.0	5.912	147.80	32	9	13.302	39.906	45	1.5	189.206
583	5th	36933	149.5	3.5	5.2325	130.80	34	9.37	14.008	42.024	24	0	172.824
587	6th	Ada Medeira Hartog	146.2	3.55	5.190	129.75	33.5	9.26	13.538	40.614	41	1.1	171.464
582	7th	Ladoga Idaline Abbecker	136.3	3.7	5.043	126.0775	35	9.67	13.1802	39.541	19	0	165.619
588	8th	Belle Hartog Colantha	124.1	3.1	3.847	96.175	34	9.28	11.516	34.548	11	0	130.723
<i>Jersey, 48 Mos. and Over.</i>													
602	1st	Mabel of Edgeley	158.4	4.8	7.603	190.075	34.5	9.825	15.562	46.686	55	2.5	239.261
603	2nd	Topsy May	126.4	5.5	6.952	173.8	34.5	10	12.64	37.92	61	3.1	214.82
604	3rd	Foxy's Queen	132.1	4.65	6.143	153.575	36.5	10.287	13.589	40.767	11	0	194.342
<i>Jersey, 36 Mos. and Under 48.</i>													
606	1st	Queen Greta	115.9	5.5	6.374	159.35	36	10.375	12.024	36.072	52	2.2	197.622
608	2nd	Polo's Rosaline	125.2	4.8	6.010	150.25	35	9.95	12.4375	37.372	25	0	187.622
<i>Jersey, Under 36 Mos.</i>													
609	1st	Edgeley Queen 11	108.0	4.7	5.08	127.0	35.0	9.925	10.719	32.157	59	2.9	162.057
613	2nd	Sadie's Buttiercup	107.0	4.75	5.082	127.05	34.5	9.812	10.499	31.497	28	0	158.547
611	3rd	Edgeley Daisy Queen	85.3	5.4	4.61	115.25	35.0	10.1	8.615	25.845	56	2.6	143.695
<i>Grade, 48 Mos. and Over.</i>													
620	1st	Lilly	219.1	4.3	9.421	235.525	35.5	9.95	21.8	65.4	65	3.5	304.425
623	2nd	Patsy	222.3	3.8	8.447	211.175	34.5	9.575	21.285	63.855	24	0	275.030
622	3rd	Freckles	211.7	3.9	8.256	206.4	33.5	9.35	19.79	59.382	21	0	265.782
621	4th	Blossom	172.2	4.6	7.92	198	35.5	10.025	17.263	51.789	11	0	249.789

FINANCIAL STATEMENT.

Of the Ontario Provincial Winter Fair, for the year ending January 31st, 1918.

Receipts.

Legislative Grant	\$12,000 00
Special Grant	2,500 00
Federal Grant	5,000 00
Grants:	
Horse Breeders' Associations	1,550 00
Canadian Clydesdale Breeders' Association	\$1,500 00
Canadian Shire Association	50 00
Cattle Breeders' Associations	1,850 00
Dominion Shorthorn Association	\$525 00
Hereford Breeders' Association	150 00
Aberdeen Angus Association, 1916	300 00
Canadian Ayrshire Association	300 00
Holstein Friesian Association	525 00
Canadian Jersey Club	50 00
Ontario Sheep Breeders' Association	300 00
Swine Breeders' Associations	275 00
Ontario Large Yorkshire Society	\$100 00
Ontario Berkshire Breeders' Society	100 00
Ontario Swine Breeders' Association	75 00
Guelph City Council	200 00
Gate Receipts	4,959 45
Entry Fees	6,006 17
Horses	\$673 45
Horse Stalls	266 00
Cattle	583 92
Sheep	408 90
Swine	273 00
Seeds	184 50
Judging	133 35
Wool	16 50
Poultry	2,924 55
Poultry Memberships	542 00
Advertising in Premium List and Catalogue	955 00
Concessions at Fair	244 00
Proceeds of Catalogues	163 44
Proceeds of Swine Carcasses	1,601 16
Proceeds of Sheep Carcasses	1,224 76
Proceeds of Dressed Poultry	1,302 34
Proceeds of Seeds	590 44
Department of Militia	1,100 00
Rent of Poultry Coops	13 60
Refund of Prize Money, 1916	14 00
Middlesex County Council, Admission, 1916	6 25
Entry Fees, 1916	6 50
A. McHardy, Swine Carcasses, 1916	488 95
Refund of Freight Charges, 1916	8 35
Sale of Bags, 1916	10 50
Donation for Dressed Poultry	50 00
Sale of Feed	98 10
Sale of Pulper	15 00
Refund Labor Account	210 90
Refund of Prize Money	4 00
Miscellaneous	45
Debit Balance	238 08
Total	\$42,986 44

Expenditures.

Balance due Treasurer as per last report	\$2,415 41
Directors' Expenses	1,288 40
Poultry Judges	688 00
Live Stock Judges	629 33
Seed Judges	60 00
Poultry Clerks	71 25
Band	96 00
Block Test	143 20
Dairy Test	107 75
Office Help	429 60
Managing Arena	196 80
Rebate on Freight	24 80
Sale of Seeds	567 50
Sale of Dressed Poultry	1,300 52
Sale of Eggs, 1916	2 10
Sale of Dressed Carcasses	2,825 86
Refund, Overpaid Entry Fees	41 20
Refund Stall Fees	29 00
Heating and Lighting	1,387 56
Fitting Building	936 34
Live Stock Help	1,027 15
Poultry Help	915 00
Seed Room Help	65 00
Turnstile and Ticket Sellers	168 15
W. Johnson (Labor)	700 00
Straw and Shavings	504 88
Hay and Silage	97 80
Poultry Feed	598 55
Watchman	16 00
Stabling	118 20
Grain Bags, Seed Department	59 25
Advertising	1,476 74
Printing	1,589 70
Telegraph and Telephone	86 94
Express	10 37
J. K. Adsett (Labor)	57 18
Transfer to W.O.P.A.	142 00
Transfer to W.O.S.G.A.	62 00
Auditor, 1916	15 00
Taxes, 1917	10 46
Holstein Specials	50 00
Prize Money	21,290 50
Horses	\$4,990 00
Dairy Cattle	2,167 00
Beef Cattle	2,767 00
Sheep	2,614 00
Swine	2,031 00
Seed	846 00
Pigeons	408 75
Poultry	5,001 75
Judging	465 00
Interest charged and discount on cheques	91 05
Prize Money, 1916	150 00
Engraving Sheep Cups and Shields, 1916	19 75
Insurance	86 40
Directors' Luncheons	277 25
Soldiers' Luncheons	23 75
Miscellaneous	36 75
	\$42,986 44

Examined and found correct
this 21st day of February, 1918.
G. DE W. GREEN,
Auditor.

JOHN I. FLATT,
President.
R. W. WADE,
Secretary.

Stallion Enrolment

SUMMARY FOR THE PROVINCE OF ONTARIO SHOWING BY COUNTIES THE
NUMBER OF THE DIFFERENT BREEDS OF STALLIONS ENROLLED
DURING 1917.

County.	Clyde.	Per.	Shire.	Bel. Dr.	Fr. Can.	Suff.	Stan. Br.	Thor.	Hack.	Fr. Ch.	Ger. Ch.	Ponies and Morgans.	Total Pure Breds.	% of Pure Breds.	Grades.	Total Horses.
Brant	11	8	1	2	1		3		3			2	31	76	10	41
Bruce	48	8	1	2	1		9	1	2	2			74	78	21	95
Carleton	30	3	1	1			7		1				43	72	17	60
Dufferin	34	3					4	1					42	87	6	48
Dundas	12	2					2	1	2				19	66	10	29
Durham	30			1			4		4		1		40	93	3	43
Elgin	18	9	3	1			4	2	1		1		39	78	11	50
Essex	17	14	1	4			12		1				49	80	12	61
Frontenac	3	6					7						16	46	19	35
Glengarry	17	6					4		3				30	70	13	43
Grenville	2	2	1				6		1				12	57	9	21
Grey	55	7		1			9	1					73	84	14	87
Haldimand	13	7	1				3	1					25	66	13	38
Halton	13	4	3		1		3	1					25	83	5	30
Hastings	12	8			1		14		1				36	61	23	59
Huron	57	8	4				18	1					88	77	26	114
Kent	20	27	3				18					1	69	77	29	89
Lambton	48	6	5				12		1				42	82	16	88
Lanark	20	5	1	1			5		5				37	66	19	56
Leeds	5	3	1		1		3						13	52	12	25
Lennox & Addington ..	6	6					2		1				15	52	14	29
Lincoln	6	2					4						12	75	4	16
Middlesex	50	10			1		26	3	2		2		94	84	18	112
Norfolk	5	10					3	1	2		1		22	56	17	39
Northumberland	19	6					4	2					31	72	12	43
Ontario	64	5	1				9		4				83	87	12	95
Oxford	24	8	1				7		2				42	74	15	57
Peel	27	6	3				4	2	1				43	91	4	47
Perth	41	4					9	2	1				57	85	10	67
Peterboro	22	9					2	1					34	68	16	50
Prescott	7	3	1					1		1			13	48	14	27
Prince Edward	7	9					3						19	68	9	28
Renfrew	11	8		1			7		7				34	55	28	62
Russell	10	2		1			4						17	50	17	34
Simcoe	50	12		1			10		3	1			77	77	23	100
Stormont	5	2											7	30	16	23
Victoria	44	2	1		1		3		1		1		53	78	15	68
Waterloo	24	6					2	1	1		1		35	78	10	45
Welland	1	5	3	2			4		1				16	73	6	22
Wellington	52	8					4		2				66	80	16	82
Wentworth	5	5		1			7	1	1				20	67	10	30
York	57	17	4				14	9	3	1			105	87	16	121
New Ontario	28	17	1				5		1	1			53	48	57	110
Outside points	8	1	1						1			1	12	85	2	14
	1,038	299	42	19	4	3	280	31	60	6	7	4	1,793	74	640	2,433

The illustrations used herewith represent the four certificates in use up to July 31st, 1918; after which Form 3 (illustration No. 4) will be discontinued, and stallions carrying such will be no longer eligible for service.

Inspection is necessary every second year until the horse has passed seven years, but this Certificate must be renewed each year.

APPROVED

Enrolment No.

FORM A 1

Certificate of Enrolment and Inspection

OF THE

PURE BRED

STALLION

Registered in the Stud Book as No.
 Owned by of Foaled in
 has been enrolled under THE ONTARIO STALLION ACT Inspected on the day of
 19 .. and found to be sound, of good conformation and
 an animal typical of the breed.

THE ONTARIO STALLION ENROLMENT BOARD.

Chairman

Secretary

Dated at Toronto, Ontario, the day of 19 ..

GOOD UNTIL DECEMBER 31st, 1918.

Application for Renewal and Transfer on back of Certificate.

Inspection is necessary every second year until the horse has passed seven years, but this Certificate must be renewed each year.

PASSED

Enrolment No.

FORM 1

Certificate of Enrolment and Inspection

OF THE

PURE BRED

STALLION

Registered in the Stud Book as No.
 Owned by of Foaled in
 has been enrolled under THE ONTARIO STALLION ACT. Inspected on the day of
 19 .. and Passed.

THE ONTARIO STALLION ENROLMENT BOARD.

Chairman

Secretary

Dated at Toronto, Ontario, the day of 19 ..

GOOD UNTIL DECEMBER 31st, 1918.

Application for Renewal and Transfer on back of Certificate.

Inspection is necessary every second year until the horse has passed seven years, but this Certificate must be renewed each year.

DEFECTIVE	Enrolment No.....	FORM 2
Certificate of Enrolment and Inspection OF THE PURE BRED STALLION		
Registered in the Stud Book as No.		
Owned by of Foaled in		
has been enrolled under THE ONTARIO STALLION ACT Inspected on the day of		
19, and found to		
THE ONTARIO STALLION ENROLMENT BOARD.		
..... Chairman Secretary		
Dated at Toronto, Ontario, the day of 19.....		
GOOD UNTIL DECEMBER 31st, 1918.		
Application for Renewal and Transfer on back of Certificate.		

Enrolment No.

FORM 3.

Certificate of Enrolment and Inspection
 OF THE
GRADE
 STALLION

Color and markings	
Owned by of	
Foaled in, has been enrolled under THE ONTARIO STALLION ACT, and was Inspected on the	
day of 19, and found to be free from the Malformations and	
Diseases named in the Regulations under the said Act.	
THE ONTARIO STALLION ENROLMENT BOARD.	
..... Chairman Secretary	

Dated at Toronto, Ontario, the day of 19....

GOOD UNTIL JULY 31st, 1918.

Read carefully information given on the back of this Certificate

Co-Operative Car Shipments

CO-OPERATIVE SHIPMENTS OF LIVE STOCK.

Below is given the shipments for the years 1908 to 1917 inclusive, and that for 1917 in detail:—

NUMBER IN EACH SHIPMENT.

Year.	Horses.	Cattle.	Sheep.	Swine.	Total.
1908.....	22	74	14	15	125
1909.....	25	70	84	4	183
1910.....	39	51	36	7	133
1911.....	58	51	51	18	178
1912.....	51	45	24	20	140
1913.....	47	71	107	21	246
1914.....	49	97	34	20	200
1915.....	28	104	76	8	216
1916.....	59	185	100	22	366
1917.....	70	269	196	15	550

DETAIL OF CO-OPERATIVE SHIPMENTS FOR 1917.

Stock.	Jan.	Feb.	March	April.	June.	July.	Sept.	Nov.	Total.
Horses—									
Clydesdales.....	1	5	11	22	8	.....	4	4	55
Standard-Breds	1	.....	1	1	.....	.....	.....	.....	3
Percherons.....	.....	.....	2	5	.....	.....	.....	.....	7
Welsh.....	.....	.....	.....	1	.....	.....	.....	.....	1
Shetland.....	.....	.....	.....	.....	1	.....	.....	.....	1
Shires.....	.....	3	.....	.....	.....	.....	.....	.....	3
Cattle—									70
Shorthorns	21	32	25	27	21	13	8	3	150
Jerseys.....	1	.....	1	5	.....	4	.....	.....	11
Aberdeen-Angus	4	11	13	4	2	.....	1	.....	35
Holsteins.....	5	10	2	1	1	1	6	.....	26
Hereford.....	.....	9	.....	17	1	6	.....	2	35
Ayrshire.....	.....	1	.....	5	2	.....	.....	.....	8
Galloway.....	.....	.....	.....	4	.....	.....	.....	.....	4
Sheep—									269
Hampshires.....	.....	.....	.....	.....	.....	.....	3	.....	3
Shropshires.....	13	21	.....	63	1	.....	.....	9	117
Lincolns.....	3	.....	.....	.....	.....	.....	.....	.....	3
Suffolks.....	11	.....	.....	.....	.....	.....	.....	.....	11
Cheviots.....	.....	.....	.....	4	.....	.....	.....	.....	4
Leicesters.....	.....	.....	.....	.....	11	.....	10	10	31
Dorsets.....	.....	.....	.....	.....	8	.....	.....	.....	8
Southdown.....	.....	.....	.....	.....	2	.....	.....	4	6
Oxfords.....	.....	.....	.....	.....	.....	.....	23	.....	23
Swine—									196
Yorkshire.....	3	1	.....	2	3	.....	.....	.....	9
Berkshire.....	1	1	2	.....	.....	.....	2	.....	6
	64	94	57	161	61	24	57	32	550
No. of cars.....	2	5	3	6	3	1	2	1	

FORM OF APPLICATION FOR SPACE IN CO-OPERATIVE CAR FOR REGISTERED STOCK ONLY.

R. W. WADE, Esq.,
Director Live Stock Branch,
PARLIAMENT BUILDINGS, TORONTO, ONT.

Dear Sir,—Kindly reserve space for the stock named hereinafter, in the next shipment of pure-bred stock for Western Canada.

ALL STOCK WILL BE ACCEPTED AT THE OWNER'S RISK ONLY.

CATTLE:—Number in shipment
Male or Female
Age (in months if under 24 months)
Breed
SHEEP:—Number in shipment
Male or Female
Weight (including crate)
Breed
SWINE:—Number in shipment
Male or Female
Weight (including crate)
Breed
HORSES:—Number in shipment
Male or Female
Age
Breed

Space required, $\frac{1}{3}$ $\frac{1}{4}$
Answer yes. Answer yes.

The above stock is to be delivered to Mr.
P.O.....Railway Station

The shipper of each horse or horned animal must supply it with first-class halter, and tie rope at least six feet long. When the halter or rope above described is not supplied by the shippers, one dollar extra will be added to the transportation charges to pay for said halter or rope and the trouble of procuring same.

When the car is ready to go please notify Mr.
P.O., who will look after shipping in Ontario.

His nearest Railway Station is Line of Railroad

Charges to be prepaid or collected

I hereby agree to pay for space for stock on above conditions, unless my notice cancelling same is received by the Director, Live Stock Branch, before final notices regarding shipping this car are mailed, and certify that the above stock is in good health, and in a fit condition to be shipped.

(Signed)

Date P.O.

ALL STOCK MUST BE RECORDED IN THE CANADIAN NATIONAL RECORDS

SCHEDULE OF RATES FOR STOCK TO MANITOBA, SASKATCHEWAN AND ALBERTA IN CO-OPERATIVE CAR.

The following are particulars of rates charged for registered live stock in Co-operative Car. These rates include transportation, care and feed during the time stock is in car. If it is necessary to ship to some point to meet the car, or if it is necessary to re-ship from the main line in the West to the destination, such charges in each case will be extra. (Registration certificates in a Canadian National Live Stock Record, must be forwarded to Director, Live Stock Branch, for the inspection of the station agent at the shipping point.)

NOTICE TO WESTERN BUYERS.

When stock is to be re-shipped from Co-operative Car to a point 100 miles or more from point of re-shipment, the purchaser must furnish an attendant from the point of re-shipment to destination.

The main line of the Canadian Pacific Railway, through Manitoba, Saskatchewan and Alberta, is divided into the following sections:

- Section 1, Winnipeg and East thereof.
 " 2, Bergen to Oak Lake.
 " 3, Routledge to McLean.
 " 4, Balgonie to Aikins.
 " 5, Swift Current to Bowell.
 " 6, Suffield to Calgary.
 " 7, West and North of Calgary.

CATTLE.

BULLS.

	Sec. 1.	Sec. 2.	Sec. 3.	Sec. 4.	Sec. 5.	Sec. 6.	Sec. 7.
Under 12 mos.	\$9 00	\$10 00	\$11 00	\$12 00	\$13 00	\$14 00	\$15 00
12 to 24 mos.	14 00	15 00	16 00	17 00	18 00	19 00	20 00
24 mos. and over	18 00	20 00	22 00	24 00	26 00	28 00	30 00

HEIFERS AND COWS.

	Sec. 1.	Sec. 2.	Sec. 3.	Sec. 4.	Sec. 5.	Sec. 6.	Sec. 7.
Under 12 mos.	\$9 00	\$10 00	\$11 00	\$12 00	\$13 00	\$14 00	\$15 00
12 to 24 mos.	12 00	13 00	14 00	15 00	16 00	17 00	18 00
24 mos. and over	15 00	16 00	17 00	18 00	19 00	20 00	21 00

HORSES.

	Sec. 1.	Sec. 2.	Sec. 3.	Sec. 4.	Sec. 5.	Sec. 6.	Sec. 7.
$\frac{1}{4}$ space	\$25 00	\$26 00	\$27 00	\$28 00	\$29 00	\$30 00	\$31 00
$\frac{1}{3}$ space	30 00	32 00	34 00	36 00	38 00	40 00	42 00

SHEEP.

Weight (including crate).	Sec. 1.	Sec. 2.	Sec. 3.	Sec. 4.	Sec. 5.	Sec. 6.	Sec. 7.
Under 150 lbs.	\$4 00	\$4 25	\$4 50	\$4 75	\$5 00	\$5 25	\$5 50
150 lbs. and over	4 75	5 00	5 25	5 50	5 75	6 00	6 25

PIGS.

Weight (including crate).	Sec. 1.	Sec. 2.	Sec. 3.	Sec. 4.	Sec. 5.	Sec. 6.	Sec. 7.
Under 150 lbs.	\$5 00	\$6 00	\$7 00	\$8 00	\$9 00	\$10 00	\$11 00
150 to 300 lbs.	7 00	8 00	9 00	10 00	11 00	12 00	13 00
300 lbs. and over	15 00	16 00	17 00	18 00	19 00	20 00	21 00

N.B.—Horses will be insured for \$200, \$500 or \$1,000, as shipper requests, at $1\frac{1}{2}\%$ for 20 days. Write below amount of insurance required.

Incorporated Poultry Associations

Beamsville and Lincoln Poultry Association.
Beaver Valley Poultry Association, Meaford.
Belleville Poultry Association.
Brampton and Peel County Poultry Association.
Brantford and Brant County Poultry and Pet Stock Association.
Brockville Poultry and Pet Stock Association.
Caledonia Poultry Association, Caledonia.
Carleton Place Poultry Association.
Central Ontario Poultry, Pigeon and Pet Stock Association.
Chesley and North Bruce Poultry, Pigeon and Pet Stock Association.
Collingwood Poultry Association.
Dufferin County Poultry and Pet Stock Association.
Dunnville and Haldimand County Poultry Association.
Durham and South Grey Poultry Association.
East York Poultry Association.
Galt Poultry and Pet Stock Association.
Gananoque Poultry Association.
Guelph Poultry Association.
Hamilton and Wentworth Poultry Association.
Hanover Poultry Association.
Harriston Poultry and Pet Stock Association.
Huron County Poultry and Pet Stock Association.
Kent County Poultry and Pet Stock Association.
Kitchener Poultry Association.
Lambton County Poultry and Pet Stock Association.
Leamington and Essex County Poultry Association.
Lindsay Poultry and Pet Stock Association.
Listowel Poultry Association.
London Poultry and Pet Stock Association.
Midland Poultry Association.
Mitchell and Perth County Poultry and Pet Stock Association.
Mount Forest Poultry Association.
Muskoka Poultry Association.
Napanee Poultry, Pigeon and Pet Stock Association.
New Hamburg Poultry Association.
New Ontario Poultry and Pet Stock Association.
Niagara Falls Poultry and Pet Stock Association.
Norfolk Association.
North Bay Poultry Association.
Northern Ontario Poultry Association.
North Ontario Poultry Association.
North Middlesex Poultry Association.
North Wellington Poultry and Pet Stock Association.
North York Poultry and Pet Stock Association.
Oakville Poultry and Pet Stock Association.
Oakwood Poultry Association, Toronto.
Ottawa Poultry Association.
Owen Sound and County of Grey Poultry Association.
Peterborough Poultry Association.
Port Hope Pigeon and Pet Stock Association.
Powassan Poultry Association.
Prince Edward County Poultry, Pigeon and Pet Stock Association.
Sarnia Poultry Association.
Smith's Falls Poultry and Pet Stock Association.
South Oxford Poultry Association.
Spencerville and Grenville County Poultry Association.
St. Catharines and Niagara District Poultry Association.
Stratford Poultry and Pet Stock Association.
Tavistock Poultry and Pet Stock Association.
Teeswater Poultry Association.
Temiskaming District Poultry Association.
Toronto Poultry and Pet Stock Association.
Waterloo Poultry and Pet Stock Association.
West Elgin County Poultry and Pet Stock Association.
West Middlesex Poultry and Pet Stock Association.
Windsor, Walkerville and Sandwich Poultry and Pet Stock Association.
Woodstock Poultry Association.

Canadian Swine Breeders' Association

The annual meeting of this Association was held in Toronto, February 4th, 1918.

OFFICERS.

President G. H. HUTTON, Lacombe, Alta.
Vice-President F. BYRNE, Charlesbourg, Que.
Executive Committee P. J. McEWEN, Wyoming, and J. E. BRETHER, Burford.

DIRECTORS.

P. J. McEWEN, Wyoming.	M. W. MILLER, Brome Centre, Que.
J. I. FLATT, Hamilton.	F. BYRNE, Charlesbourg, Que.
J. E. BRETHER, Burford.	W. H. ENGLISH, Harding, Man.
S. V. TOECKO, Lipton, Sask.	S. F. ROACH, Sussex, N.B.
G. H. HUTTON, Lacombe, Alta.	S. F. TOLMIE, Victoria, B.C.

RECORD BOARD.

J. D. BRIEN, Ridgeown.	J. E. BRETHER, Burford.
J. I. FLATT, Hamilton.	H. GERMAN, St. George.

FINANCIAL STATEMENT

OF THE CANADIAN SWINE BREEDERS' ASSOCIATION, FOR THE YEAR ENDING
DECEMBER 31ST, 1917.

Receipts.

Cash on hand as per last report	\$6,722 31
Registrations	9,647 52
Memberships	2,840 00
Interest	87 32
Refund, Advance Expenses <i>re</i> Hog Cholera Committee	200 00
Total	\$19,497 15

Expenditures.

Directors' Expenses	\$985 06
Grants:—	
Ontario Swine Breeders' Association	1,235 80
Manitoba Swine Breeders' Association	373 90
Saskatchewan Swine Breeders' Association	731 50
Alberta Swine Breeders' Association	807 90
British Columbia Swine Breeders' Association	83 45
Quebec Swine Breeders' Association	868 20
Maritime Swine Breeders' Association	145 25
Record Office, for Salaries, 1917	3,600 00
Record Office, balance due on expenses, 1916	1,791 73
Printing Records	2,247 39
Printing Annual Report and Notices of Meeting	21 50
Purchase of Records	10 00
Auditor	5 00
Floral Wreath for the late John Bright	10 00
Reporter at Annual Meeting	12 00
Miscellaneous	5 00
Cash on hand	6,563 47
Total	\$19,497 15

P. J. McEWEN, *President*.
R. W. WADE, *Treasurer*.

PRESIDENT'S ADDRESS.

I congratulate the Canadian Swine Breeders on the good financial statement that the Secretary has presented.

We have increased the membership by 212 over last year, and the grants to the various Provinces were: Ontario, \$1,235.80 as compared with \$1,201 last year; Manitoba \$373, against \$203; Saskatchewan \$731, against \$359; Alberta \$807, against \$397; British Columbia \$83, against \$56; Quebec, \$868, against \$633; Maritime Provinces \$145, against \$121.

The executive met and appointed a committee to deal with the question of hog cholera. This committee went to the United States and got what information they could. Mr. Brethour, Mr. Wade, and myself were on that committee and we were accompanied by Mr. Porter, of *The Farmers' Advocate*. We visited Chicago, Davenport, Whitehall, and to Pitman and Moore's serum and virus plant at Indianapolis.

When we came home we met Dr. Torrance, in Ottawa, and he gave us a very attentive hearing, and he is here to-night and will explain what steps have been taken.

I will not take up any more time, as we have a lengthy discussion before us.

HOG CHOLERA.

DR. TORRANCE, OTTAWA.

I am very pleased to have this opportunity of meeting the Canadian Swine Breeders and saying a little about hog cholera, from the standpoint of our mutual interests.

We are agreed upon the importance of keeping this great scourge out of our country to the best of our ability. We are somewhat hampered in our efforts along this line by the fact that we have a continuous border line to the south of us of about 4,000 miles with the United States, and that country has been suffering for many years from a tremendous amount of hog cholera. A few years ago the Bureau of Animal Industry undertook some new work in regard to hog cholera and established an experimental station in charge of Dr. Dorset, who went into the problem with all the facilities at his disposal, and from a new point of view, which was to try to immunize hogs against this disease. The country had been overrun for many years with quack preparations, and farmers spent thousands of dollars trying to cure hogs that had taken sick. The idea which was the basis of this new effort was, that it would be much more profitable to prevent the disease by rendering the animals immune. Dr. Dorset was successful, after a time, in discovering that if a hog was bled after recovering from the disease and its blood injected into another hog, then that hog was protected against hog cholera for a certain length of time. He followed that first step by hyper-immunizing the hog by injecting into him some of the blood of a hog suffering from an acute attack of hog cholera. The serum from the hyper-immunized hog when injected into another hog gives protection against hog cholera for a certain length of time. Unfortunately the length of time was comparatively short, they are only protected for a variable period of from six weeks to two months.

It became necessary to find some additional means of increasing this protection so that it would last the life time of the hog. This additional means was found

in the blood of affected hogs in the acute stages of the disease, and this is called virus. When the virus and serum are injected at the same time and in proper doses, the animal is then protected against hog cholera for his whole life time.

Each of these two systems, of the serum alone method or the double method, has advantages and disadvantages. The serum alone has the advantage that it cannot produce the disease. It is perfectly safe to use it, and there is no danger of the disease starting from an outbreak. The other system, so-called double or simultaneous method has the advantage of protecting the animal for an indefinite period, and has the disadvantage of sometimes starting a fresh outbreak. If the serum used is not sufficiently potent the virus produces the disease, and we have an outbreak. It also has the disadvantage, that if the virus is not sufficiently strong, the animal is supposed to be protected when it is not. And it also has this disadvantage: that the virus and the serum have a certain relationship one to the other, and when the two are put together they are not interchangeable; that is to say, you cannot take serum from one serum plant and at the same time use the virus from another without running the danger of having an outbreak.

Now, in considering our Canadian situation, I might say I have been watching the experiments of the United States in dealing with hog cholera along the lines of double and single methods ever since it started. I have been to all the meetings of the Live Stock Sanitary Association and of the American Medical Veterinary Association and studied their view-point and experience with the object of adopting what was best for our country. In considering that point we have to compare conditions in Canada with those of the United States, and I would like to say that in Canada we occupy a very enviable position in regard to hog cholera. In the United States the losses from that disease have been very heavy. During the last five years they have lost upwards of twenty-five million hogs, an average of five million hogs a year. Five million hogs would be 830 train loads of hogs of 40 cars each, and they have lost that number of hogs every year during the past five years, taking it as an average. During the last year their losses have been considerably less. But if we compare our losses with theirs, they are exceedingly small. And taking our worst year and comparing it with their best year, we seem to have a great advantage.

I have a few figures I would like to submit to you. These figures are from the United States Secretary of Agriculture's own statement. Last year the hog population in the United States was 67,453,000, and their losses from hog cholera 2,959,322; if we reduce that to a percentage we find they lost 4.3 per cent. of their hogs from this disease. The year previous to that their hog population was practically the same, their losses 4,057,000 or 5.9 per cent. In 1915 their hog population was 64,618,000 and losses 5,541,971 or 8.5 per cent. In 1914 the population was 58,933,000 and loss 6,304,320 or a per cent. of 10.7 per cent. In 1913 the population was 61,178,000 and loss 6,064,470 or 9.9 per cent.

Now for the Dominion of Canada for the same period we have in 1917 a hog population of 2,513,526, loss 4,413, a per cent. of .16. In 1916, population 2,814,000, loss 5,700, or .2 per cent.; 1915, population 3,111,000, loss 34,417, per cent. 1.11; 1914, population 3,434,000, loss 34,779, per cent. 1.01; 1913, population 3,448,000, loss 8,466, per cent. .24.

The present year, I am glad to say, promises to be better than any in the last five years in Canada, as up to date we have lost only 1,645 hogs. We will have to lose thirty times as many hogs to equal the rate at which the United States is losing hogs now, and that is in spite of the great effort that is being made at the present time to control the disease by means of the double treatment.

I am not opposed to the double treatment where it is necessary, and in the United States, where they have so much hog cholera, I think the double treatment is the best remedy for them. In our country, where we have comparatively little of the disease, it is not my opinion that the double method is the best system for our guidance. I think our present method is best suited to our conditions, and I may say, for the information of those members who may not be conversant with our methods, just what they are. Whenever we receive word of any sickness among the hogs, we send our inspector who makes a diagnosis; if necessary, he kills one or two hogs in order to find out what the trouble is. If he finds that hog cholera is present, he kills all the hogs that are sick, and, when I say sick, I mean hogs that are visibly affected with hog cholera, and valuing them at the same time, so the owner will receive compensation for their slaughter. At the present time the maximum compensation given for ordinary hogs is \$10, and for purebreds it is \$50, and I think I may say that that valuation is too low for present conditions. It cannot be changed, however, without changing the Act. After the sick hogs have been disposed of, the inspector then immunizes all the hogs that remain on the premises by giving them serum alone. The premises are cleaned up, the affected hogs are disposed of by burning or deep burial, the premises placed in quarantine, and the owner is not allowed to sell anything off the premises without the permission of the Department. We make this apply to hogs only. He has absolute freedom to dispose of anything else on the farm. During the next two months the owner is expected to feed these hogs, which have had the protection afforded by the single method of immunizing hogs, and then the hogs can be disposed of for the market. But we require that they shall pass inspection by one of our inspectors. If possible, we recommend shipping them to an abattoir where federal inspection is carried on. These hogs as a rule pass inspection and fetch as good a price as any other hogs on the farm. After a reasonable time the farmer is allowed to reconstruct his herd.

I may say that it is very uncommon for hog cholera to break out again on the same premises, especially where the rules of disinfecting have been carried out.

I was approached by a deputation not long ago from this Association asking us to modify to some extent our regulations. We have been doing our best to protect our hogs against infection from the United States, and we have thought it necessary to maintain a thirty-day quarantine, and refused absolutely to allow double immunized hogs to come into Canada. It is only right that we should allow purebred hogs to come in under certain conditions if it can be done safely. The following change has been adopted in our regulations: Hogs must be purebred and must have been immunized not less than thirty days previous to the time imported, before leaving the farm must be immersed in disinfectant solution, and then be quarantined for thirty days. This change in our regulations is already in force, the Order-in-Council having been passed last week, so that anyone now has the opportunity of buying hogs in the United States whether double immunized or not.

As regards the double immunizing treatment in Canada, I am still of the opinion that we do not need it. But I am willing to meet the demands of the hog men as far as I can safely go and carry out my duty to the country at large. There are certain counties in Ontario, Essex and Kent, which have suffered more from hog cholera than any other parts of Canada, and I am willing to do this, if any county will petition through a majority of the stock owners to have the double treatment introduced within the borders of that county. I am willing to do it under certain conditions, which are: that we will immunize by our own veterinary officers those herds of purebred animals, and those herds which are reasonably large

enough to warrant it, within the borders of that county. We will maintain restrictions over the movement of hogs in that whole county and over several of the neighbouring counties, but we will make these restrictions as lenient as we can safely do so. If the County of Essex or any other county decides that it is in the interests of the majority of the stock owners there that the double treatment shall be permitted within the borders of that county, we are willing to carry it out, but only through our own officers. I do not propose to permit any veterinary who is practising to use virus at all. That has been one of the reasons why hog cholera has spread in the United States to the extent it has.

To go back a little in the history of the double treatment in the United States, I would say that when this treatment was announced it was welcomed all over the United States as a great panacea. The hog producers thought the question had been solved, but they soon found out that something more than the double treatment was necessary. An enormous demand for hog cholera serum sprang up, such a demand that existing facilities for producing it were entirely insufficient, and an enormous number of new plants sprang up all over the country to supply the demand. Some State and some private institutions did put up a reliable product, but others were interested only in making what money they could, consequently the country was flooded with unreliable serum and virus, and it was put in the hands of the farmers, stockmen, veterinaries, anybody who liked to go into the business, and the consequence was an enormous increase of hog cholera in the United States. If you take the trouble to look at the statistics you will see that the increase in hog cholera corresponds with the years that hog cholera serum and virus were being propagated all over the country. The situation got so bad that the Federal Government had to step in and place restrictions that no serum plant could ship its product from one state to another without being under Federal license. There are of course some plants within the borders of a State doing their business within the borders of that State that are not under Federal license, and there still is a considerable amount of unreliable serum and virus. They also found that permitting any Tom, Dick or Harry to use virus was one of the greatest possible mistakes. This virus is one of the most dangerous substances that can be imagined. It consists of the blood of the diseased animal, and a single drop is enough to communicate the disease to an animal, and you can easily imagine that its distribution over the country is a dangerous source of infection.

I do not propose that Canada will run that risk. If we have that double treatment, it is only the officers of the Department who can use it; we will keep it in safe hands as well as we know how.

I am here at your disposal, and will try to answer anything you wish to ask about. My ideas coincide with your ideas. I want to conserve our food products, and by limiting the spread of disease to the smallest possible dimensions we will make the country more prosperous, increase our live stock, and reduce the cost of living. (Applause.)

Q.—To what extent do you want the petition to cover the county?

A.—The majority of the stock breeders.

Q.—The majority of every man in the county?

A.—Yes.

MR. BRETHOUR: If I happen to be a breeder in the restricted county how am I going to sell my stock to the rest of Canada, under what restrictions can that stock be sent out?

DR. TORRANCE: I understand you refer to the double immunized hogs. We would have to treat them in the same way that we would treat the hogs imported

from the United States that are double immunized, with the exception of the quarantine. If there was no hog cholera, the owner would be allowed to ship double immunized hogs not less than thirty days after treatment, and they would have to be dipped.

MR. BRETHOUR: In regard to whether garbage is being fed, could some arrangement be made by having a clause in the schedule that they would not send the stock out except to packing houses? There will be quite a demand for hogs to be treated with the double treatment where they are fed waste from the cities.

DR. TORRANCE: As regards the garbage-fed hogs in quarantine, they are permitted to go to the packing-houses only. The regulations you speak of would not be necessary in the vicinity of Toronto, where the hogs are fed on the refuse from the city. Those owners would be granted the privilege of immunizing the hogs by the single method. At the present time we are immunizing herds in the vicinity of cities, garbage-fed hogs, at the expense of the owner with the single treatment. Of course a man in the garbage feeding business who doesn't require to keep hogs for any great length of time the single treatment system is sufficient, for he is able to feed the hogs and keep them within limits very closely, but it would not do for breeders.

THE PRESIDENT: Have you made any different regulations in regard to purebred herds. Suppose cholera broke out in a purebred herd, do these hogs have to be all slaughtered?

DR. TORRANCE: Oh, no; I explained that we do not slaughter any hogs except those actually diseased. The others are immunized to keep them in good health. We have been insisting that immunized hogs shall be slaughtered when they were fit for market, but fortunately we have been dealing with hogs that were not registered.

MR. BRETHOUR: Would it be a wise thing to quarantine and use the double treatment in the case of purebreds where it would be done under the inspection of your Department until after the two months period, when the balance of the hogs could be killed?

DR. TORRANCE: That could be done if desirable. It would save the breeding stock.

THE PRODUCTION AND APPLICATION OF ANTI-HOG CHOLERA SERUM.

FRANK V. HAWKINS, PITMAN-MOORE COMPANY SERVICE DEPARTMENT.

Hog cholera is the commonest and most highly contagious disease that affects swine. No breed of hogs is immune to it. The death-rate from this disease is so great that it constitutes one of the most serious sources of losses affecting the agricultural industry of the United States.

CAUSES.—Hog cholera is caused by the presence in the blood of a virus or poison, the exact nature of which has never been determined, as science has not yet succeeded in separating this virus from the other elements in the blood. This virus cannot be seen by the microscope, and the elements of which it is composed are so infinitesimally small that they pass freely through the finest filter.

This filterable virus is found not only in the blood of every hog that is afflicted with cholera, but in the feces, the urine, and nearly all the body tissues.

The only way in which an animal can contract hog cholera is by actual contact with this virus. The many beliefs that the disease is caused by such things as eating green corn, the use of rings, etc., are entirely wrong. Such conditions may bring about lessened resistance to the disease, but a genuine case of hog cholera can occur only after the hog has come in contact with the cholera virus, and has taken some of the virus into his own system.

HOW THE DISEASE SPREADS.—Hog cholera may be transmitted in a number of ways: by direct contact of one animal with another; in sleeping quarters or feeding troughs; by birds, by streams, by dogs and parasites; on the shoes of individuals, and by eating infected food. It is most frequently contracted at the time of feeding, and herds that are confined in close, ill-ventilated or unsanitary quarters are most readily infected, and they offer the least resistance to its ravages.

Birds that feed on the carcasses of hogs dead of the disease often carry the causative agent to remote fields, where they communicate it to healthy animals. The pollution of a stream, caused by the presence of an infected carcass, may carry the infection to other herds miles away. Hogs shipped by rail, frequently loaded from infected yards into clean cars or into cars that are already infected, carry the plague from stock-yard to stock-yard.

Practically all public stock-yards are infected with cholera, as are all public feeding pens and rest stations provided by common carriers for the accommodation of hogs in transit.

There is always a probability of infection at public fairs and stock shows, and none but immune animals should be sent to such places for exhibition purposes. After returning from an exhibition such animals should be quarantined for at least thirty days before being permitted to mingle with the herd.

So, here again, we find the absolute importance of keeping in the most sanitary condition possible all of the quarters which our hogs occupy. The use of coal-tar disinfectants or unslacked lime, plentifully scattered over the feed lot, under the troughs and in the sleeping quarters, helps in destroying the infection.

Anti-hog cholera serum and its application as a preventive of loss by hog cholera, was discovered by scientific investigators working under the direction of the United States Department of Agriculture, and was first announced in a bulletin issued by the Bureau of Animal Industry of that department in 1906. A brief description of the methods employed in the production of this serum may be of interest to the readers of this publication and may assist in arriving at a better understanding of the disease itself.

Anti-hog cholera serum is the defibrinated blood of immune swine that have previously been injected with tremendous quantities of hog cholera virus. The process by which this injection of hog-cholera virus is made is called hyper-immunization and the animals so treated are known as hyper-immunes. These hyper-immunes are the animals from which anti-hog-cholera serum is obtained.

The first step in the rather long process required for the production of serum is the securing of the necessary quantities of hog cholera virus. Hog cholera virus is the defibrinated blood of pigs that are suffering from a virulent attack of acute hog cholera.

To produce this virus a careful selection is first made of susceptible non-immune pigs weighing from forty to eighty pounds. These pigs must be in a perfect state of health as far as it is possible to determine by careful physical examination. After the selection of these animals they are each inoculated with cholera by injecting 2 cubic centimeters (or thirty drops) of hog cholera virus into the muscular tissues of their bodies. These pigs are then placed in specially built

pens and are kept under close observation for nine or ten days. The temperature of each one is taken and recorded daily. The first symptom of the onset of the disease should appear on the fourth day, as a slight rise of temperature. If an elevation of temperature should occur before the fourth day the animal is not considered as fit for use, since it is an indication that some other infection existed in the animal's system before its inoculation with virus. If the disease is progressing properly the animal should refuse to eat by the seventh day after inoculation, and by the ninth or tenth day should exhibit well-marked physical symptoms of cholera. These symptoms include a weak, staggering gait, loss of appetite, drawn up or "tucked in" flanks, arched back, and, a little later in the progress of the disease, pink hemorrhagic spots on the skin of the abdomen. From the fourth to the ninth day the temperature of the animal should rise still higher, fever of 106 to 108 degrees often being found. If these symptoms have developed satisfactorily the animal is considered to have a virulent attack of acute cholera and its blood to be well filled with virulent cholera virus.

After careful preparation of the animal by scrubbing with disinfectants and shaving and sterilizing the skin over the throat, it is placed on an operating table and the blood is drawn by making a puncture of the large blood-vessels in the neck. The blood is drawn through a hollow bleeding knife into freshly sterilized bottles without being exposed to the air or coming in contact with the skin of the animal, the hands of the operator, or any article or utensil outside of the specially prepared container. Next, a careful autopsy is made of the pig, the different organs and glands being carefully examined; first, to demonstrate the existence of a virulent form of acute cholera; second, to prove absolute freedom from any other disease or infectious condition except cholera. Unless the condition of the animal is found by this post-mortem examination to be satisfactory in the above respects its blood should not be used for the preparation of virus, but should be destroyed by heat. If the post-mortem examination proves its blood to be acceptable, the carcass of the animal is sent to the rendering tank and the blood is delivered to the defibrinating-room, where the fibrin, or clot, is extracted, and the liquid portion of the blood is then ready for use as hog cholera virus. The virus is the basis for the production of serum, and the care with which it is selected very largely determines the protective power or potency of the serum produced by it.

The next step in the process is the selection of healthy hogs that already have been immunized against cholera by the injection of anti-hog cholera serum and hog cholera virus. Animals weighing from two hundred to two hundred and fifty pounds are preferred, and the preference also is for hogs that have been immunized ninety days or more previously. It is quite common to use animals for serum production that were immunized when they were pigs of fifty to seventy-five pounds in weight, but which now weigh from two hundred to two hundred and fifty pounds. These animals are kept under observation for several days to determine that they are free from any disease, and they are then taken to the hyper-immunizing laboratory, where they are injected with the virus already prepared in the virus department, as described above. For making this injection of virus a hypodermic needle is placed within the walls of one of the veins of the ear, and this needle is connected with the container, which holds the proper quantity of virus. The amount of virus injected is in the proportion of five cubic centimeters for each pound of the animal's weight, or five hundred cubic centimeters (one pint) for each one hundred pounds of hog. From this it will be seen that in the case of a two hundred pound hog a quart of hog cholera virus is introduced directly into the blood stream of the animal in this operation.

If this hog had not previously been successfully immunized against cholera a one-thousandth part of this amount of virus would cause the animal's death from an acute case of cholera. Due, however, to the protection afforded by its former vaccination the animal will withstand this great quantity of virus with only a slight temporary inconvenience, due to the increased quantity of blood to which its circulation must accommodate itself.

It must be understood that this large quantity of virus is injected for the purpose of greatly increasing the power of the animal to resist cholera, to the end that its blood will become very heavily charged with the principles which form the protection of the animal against the disease.

After this treatment is completed these hogs are termed hyper-immunes. They are then placed in clean sanitary pens and fed a liberal, carefully selected diet and the observation of their condition as to health is continued. The temperature of each animal is taken and recorded daily, and must, at all times, be found to be normal. The animals must show a continued increase in weight. They are kept under these conditions for twelve days, at which time a first bleeding is made and about four and one-half cubic centimeters of blood per pound is drawn. This operation must be conducted under just as strict methods of cleanliness and disinfection as applies to the operating-rooms of modern hospitals, and every precaution should be taken to prevent any contamination of the blood by any material which might introduce the germs of other diseases into it.

Following this bleeding the animal is returned to its pen and is kept under observation for seven days more. At the end of this time a final bleeding is made by a method similar to that used in the collection of virus, and all of the blood in the animal's system is removed. Its carcass is then given a careful post-mortem examination, and it must be proved that the animal was entirely free from disease of any kind. None of the blood which the animal has furnished can be used in any way until this post-mortem examination is complete and approved. If this post-mortem does reveal that the animal was in perfect health its blood can now be mixed with the blood of other animals to produce a serial lot or "batch" of serum.

A "serial lot" of serum contains usually eighty thousand cubic centimetres or twenty gallons, and the blood of about twenty hogs is necessary to supply this amount. Previous to being mixed, the fibrin or "clot" is first removed and a small amount of preservative is added. The mixing of a "batch" of serum is accomplished by placing the entire amount in a sterilized mixing tank, which is equipped with an electrical stirring device. The serum is stirred in this container until a complete, thorough mixture results, when it is drawn from the mixing tank directly into sterilized bottles.

The product is then ready for the first of a series of tests to prove its protective power and its purity, or freedom from contamination by any disease-producing infection. The first of this series of tests is made upon young pigs of from forty to eighty pounds in weight. For this purpose eight healthy pigs are selected, and each one of the eight inoculated with two cubic centimeters of hog cholera virus of proven virulence. Of these eight pigs, two receive virus alone, and must contract acute cholera in the same manner as described for the pigs from which virus is produced. If they do develop the disease properly, this fact is taken as proof of the virulence of the virus. To each of the second pair of pigs from the lot of eight is given, in addition to the virus, fifteen cubic centimeters of the serum under test. The third pair are given twenty cubic centimeters each, and the fourth pair twenty-five cubic centimeters each of the serum. All six of the pigs which receive both serum and virus are kept under observation for twenty-one days, and must

remain healthy during the entire time and must show perfect health and a gain in weight at the end of the twenty-one day period. This test is for the purpose of proving the ability of the serum to protect against the hog cholera infection produced by the virus which the animals received. If the serum should fail to protect any one of the six test pigs, the test is considered to be a failure, and none of that lot is marketed. It should be noted that the dosage of serum used in making this test is very much less than the dosage to be used in the field. The increased amount of serum used in field work being for the purpose of adding additional safety to the treatment.

If the foregoing test has been completed satisfactorily, additional samples are taken from the lot and subjected to a series of microscopic, bacteriological and guinea-pig inoculation tests to prove the purity and safety of the product. All of these different processes and tests are applied in the regular routine of the laboratory, and each separate lot of serum must pass all of them successfully before it is marketed.

Some valuable lessons as to the control and prevention of hog cholera in the field may be learned from the methods by which serum and virus are produced in the laboratory. In the description of methods used in producing virus it will be noted that several days elapse after the virus pigs are inoculated with hog cholera before any of the effects of the disease are noticed. When the infection is picked up by the animals in the ordinary manner on the farm, the time elapsing before it is possible to notice any sickness in the herd is much longer.

Overlooking this fact has caused the loss of thousands of hogs that otherwise could have been saved. Often an owner will report that he has "Just one or two pigs 'off their feed,' 'not acting just right,' but the rest of my hogs are all right." The real truth may be that these two pigs that first get "off feed" have come in contact with the germs of cholera first, but long before they show visible symptoms they have begun scattering infection in the excretions from their bodies, and all the rest of the herd are having an excellent opportunity of contracting the disease. Indeed, many of them may already be taking cholera, and on taking their temperatures we may find that they have several degrees of fever, although no outward sign of the disease is yet visible. This incubation period varies in different animals and with different types of cholera, but averages about two weeks in length. It may be as short as two or three days or as long as four weeks from time of exposure until you will notice anything wrong with the hogs.

On account of this incubation period the owner who attempts to conceal the fact that he has some sick hogs in his herd or who fails to notify immediately the proper authorities when disease appears in his herd, makes a serious mistake, both from the standpoint of his own financial interest and from that of preventing the further spread of the disease. If the trouble is reported immediately, as soon as the first sick animal is noticed, the probabilities are that not very many of the herd have as yet become infected, while a few days' delay may result in the infection reaching the entire herd.

THE APPLICATION OF THE SERUM TREATMENT.—Anti-hog cholera serum has been proven to be of great value in controlling outbreaks of the disease and in preventing losses of swine as a result of hog cholera. There are two methods of employing the treatment, known as the serum alone or "single" method, and the simultaneous or "double" method. Each of these methods has its advantages and disadvantages. The serum alone method possesses the advantage of being absolutely safe, in that it cannot by any possibility cause spread of the disease, and does not require any extraordinary care of the animals after treatment. Its dis-

advantage lies in the fact that the immunity produced by this method is of only short duration; usually lasting for from three to six weeks, after which time the treated animal may become as susceptible to cholera infection as before.

The advantage of the simultaneous treatment is that when properly administered it produces immunity of very much longer duration. The simultaneous treatment consists of the injection of a small quantity of hog cholera virus in addition to the serum. The purpose of using the virus is to produce a reaction in the system of the animal, which under proper conditions will render it permanently immune to cholera, affording lifelong protection to the immunized animal when administered to swine of sufficient age and weight. It must be borne in mind, however, that hog-cholera virus may well be likened to fire; a most valuable thing when kept under proper control and easily controlled as long as it is kept in its proper place and handled with due precautions for safety; but a most dangerous and destructive agent when allowed to escape from the control of its master.

The administration of the simultaneous treatment should not be undertaken except by competent veterinarians, who have had special training in this particular line. These operators must understand how to correctly gauge the dosage of serum and virus for different animals; and their judgment on this point must be based on the physical condition of each individual animal, and the conditions under which the herd is kept, as well as on the size and weight of the animals that are treated. They must understand how to prevent the escape of any of the virus, and how to destroy its dangers by careful disinfection, should any virus be accidentally spilled or escape from needle wounds in the treated animal. They must be able also to give the hog owners full and definite instructions about feeding and caring for their hogs before and after treatment, and it is the owner's duty to himself and his herd to observe such instructions carefully. All of these things are necessary parts of successful immunization, but they are not difficult to secure when the work is placed in competent hands.

Under the very wise provisions recently announced by the Veterinary Director General of Canada, the use of the simultaneous treatment will undoubtedly prove entirely successful, and Canadian swine growers will receive the advantage of avoiding the blunders and mistakes which at times and in certain sections of the United States have occasioned some doubt as to the value of the treatment. Its use under official direction and restrictions should result in attaining the greatly-to-be-desired end of bringing about a substantial increase in the production of pork in the Dominion.

ADDRESS.

H. S. ARKELL, LIVE STOCK COMMISSIONER, OTTAWA.

I have no thought of taking up time with a long address this evening, but it may perhaps be only fair to the Association and proper from the standpoint of the general work in which we are all engaged, that some few words should be said in reference to the relationship between the representatives of this Association and the Department during the last year. There is also the problem of food production in which your Association has been vitally interested and in which swine growers throughout the country have to bear their share and have borne their share.

I do not think it need be necessary to go into detail and discuss all the reasons for the work that has been undertaken during the past year. It has, perhaps, been

one of the most eventful years in connection with the live stock industry of this country. And there may grow out of it more definite lines of work and more definite promises of future development than have taken place heretofore. I think we may assume without further discussion that the reasons are good which have justified the campaign which has been entered upon throughout the country. All of you are familiar with the food situation as it has been explained by officers of the Government, both Federal and Provincial, by the press and through other sources. I think there is throughout the whole of Canada an understanding respecting the food situation and of our obligation to our Allies and to the women and children of Europe which has called forth a response of which as a country we may well feel proud. I think, from that point of view, we may waive any further discussion and simply assume that the undertaking was absolutely justified.

There has been some little discussion as to whether under the present circumstances respecting food we should use our cereals or grains in feeding stock. I want to say in one brief word that the story that comes to us across the Atlantic denotes the need of pork, of bacon, of fat, and I think, apart altogether from the relationship of hogs to other live stock, that owing to the fact that hogs produce fat in such a large degree they will be needed, and will continue to be needed while the war lasts and for some time after.

There is this to be said, that Germany made the mistake of curtailing her hog population to such an extent at the beginning of the war that the fat situation, among the Central Powers particularly, is said to cause grave concern. The contribution that is made by the United States and Canada in that direction is to save the situation in Great Britain and in the Allied countries. And it is not argued now in discussion of general food problems as to whether or not we shall turn the grain into hogs, but that we may adjust the production in such a way that will insure an adequate supply of fat.

With respect to the problems with which we are still faced, last year I had an opportunity of speaking to you and making some more or less definite recommendations. We then had little thought of what would take place during the coming year; we had no understanding that our whole country would be faced in the way we have been with the food situation.

I think it may be taken for granted that the work done in the publicity campaign prior to the immediate and urgent call had a very great deal to do with the success of the campaign. For the reason that generally throughout the Province, through Prof. Day's work and through the understanding of the situation that was quietly going on, the way was paved for a clear cut campaign and the result soon became apparent. I would like to say that there has been a disposition on the part of the growers and feeders of the country to stand on their own feet and face the proposition as part of their problem in a way that is satisfactory as regards the promise of future success.

I want, just from the standpoint of our own branch and our own department, to state this fact: that we are grateful for the support we have had from your committee during this year, and also from Prof. Day, who in a large sense represented you, in the work that has been undertaken. Your President, your Secretary, and Mr. Brethour have met us on different and frequent occasions in consultation and in consideration of the ways and means of undertaking the work we had to do. I believe if that sort of representation can be continued by some definite medium through which your association and others can be spoken to, that we will get very much farther than if you rely simply upon Government activity.

We are faced with an opportunity and an obligation that calls for the best

effort that our country can give. At the present time the conservation that is needed can only be brought about by the co-operation of the men themselves throughout the country. I would like to deal in very brief form with some of the things we are face to face with at the present time. I may say at the beginning that when the proposition presented last October was made, there was only one thing to do—if we were to get the sows bred in time to insure a crop of pigs this year—we had to go out without working out a clear-cut programme to cover the whole year and gain the confidence of the country from that point of view, and to convince the country of the problem that existed regarding the food supply. One thing we naturally had to have, and that was to get the sows bred: I do not think we need to give a reason for that further. I think it may be stated that we recognized, in facing the country with that problem, and with that obligation, if you like to call it so, that after that work was done there remained to be done, perhaps, the most important part of the work, which part, however, was waived for the moment, and about which very little was said. I am inclined to think that the smallest part of the work has been accomplished. I want to say from the standpoint of the Department, and I think I may speak, not only for our own Department but for the Provincial Department of Agriculture who were generously associated with the undertaking, the response that was made was indeed patriotic, particularly when no guarantee was given as to what would take place in the months that were to come. The response has been particularly gratifying in practically all Provinces of the Dominion. The work was undertaken by the consent of those who pledged themselves to go out and tell the story to the people, and the people themselves after hearing what the situation was, met it in a spirit of which the whole country might well be proud. There remained certain things to do and which, perhaps, rested with the Government more than with the people of the country, and I think it is only fair to your Association and to all that you represent that there should be a clear-cut statement as to what those objects are.

In the first place, I think it will be said that no greater problem remains before the country in connection with production than that connected with feed. I do not need to go into details in discussing this, except to say, that in consultation with the Minister it has been suggested and understood that the effort of the Department in so far as it relates to production of live stock throughout the country this year will be directed towards doing what we can to solve the problem of feed. It will mean not only production of feed, which will loom large in this year's work, but it will mean the conservation of feed, and I am sure before the year is over that we will have to definitely consider how we can conserve the concentrates in the manner in which they are fed to live stock. I want to suggest that now as a problem that may yet present itself in a very definite and concrete fashion. And when it comes to that it is my belief and conviction that hog production must receive clear and urgent recognition.

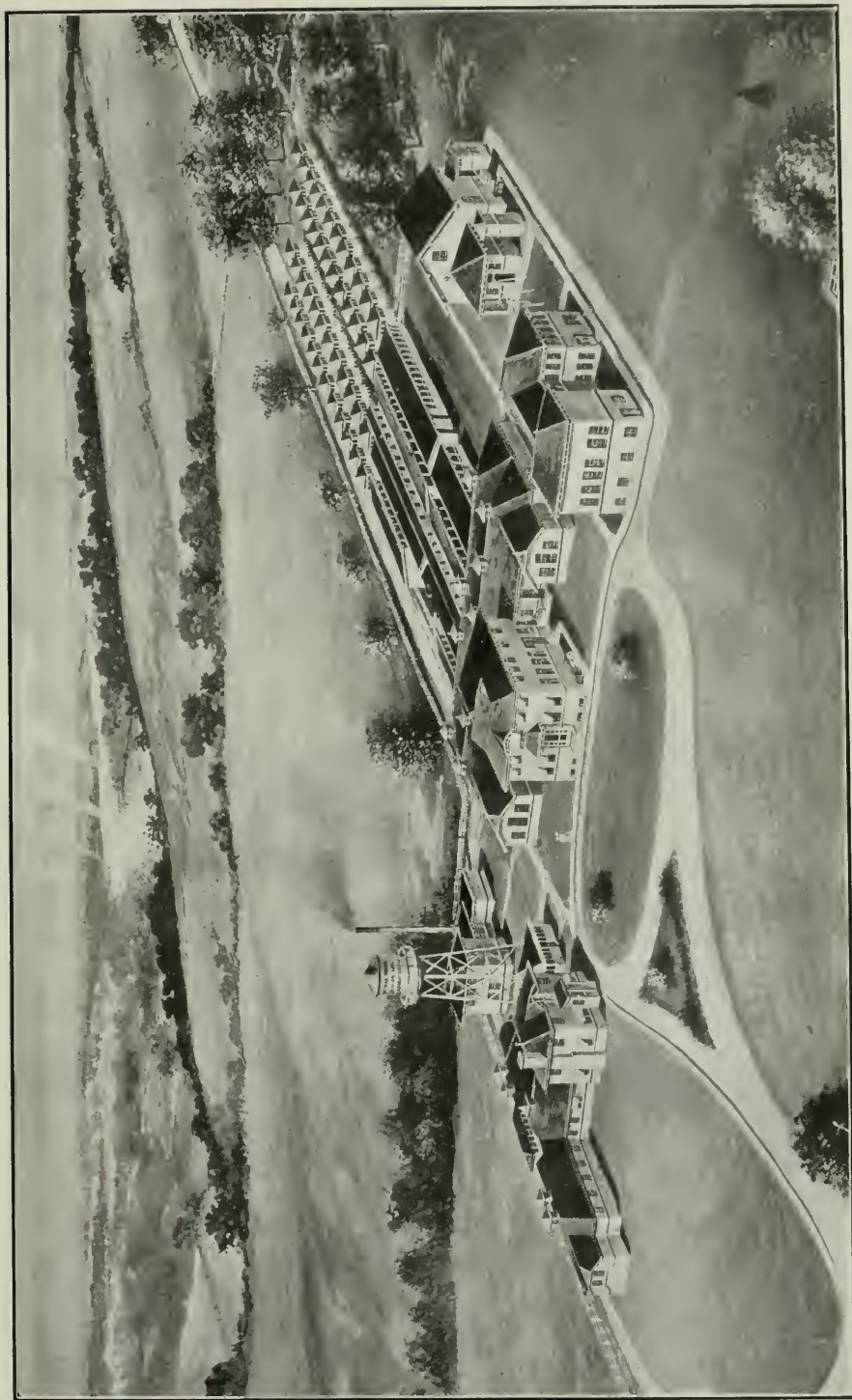
In addition to the production and conservation there will be the question of importation, and in that direction I believe a great deal can be done. The Minister has started out in an endeavor, as far as possible, to solve the problem in this direction. We have purchased a considerable amount of feed already. Only last week we placed an order for 10,000 tons of oil cake, which I hope will start moving from New York to-night. We find the greatest difficulty in the movement of corn from Chicago: we are prepared to purchase all the corn we can get moved, but the transportation difficulties have made it impossible heretofore to get corn from Chicago, and, in addition to that fact, the corn now moving is very poor. I am only outlining that as one phase of the problem.

There is another matter I want to say a word or two about; I refer to the protection of the growers in connection with the marketing next fall of this coming spring's crop. I am inclined to think that some very careful work needs to be done in that direction. In the first place we shall have to provide against congestion within the country itself. Secondly, we shall have to insure a regular and sufficient outlet through an export channel; and, in the third place, the transportation to carry the product that is produced.

I am able to say that the Minister has already discussed and spoken with me in reference to this particular matter. I believe that he is prepared to go into it until from his point of view, the Department's point of view, it will be solved—if it can be solved in any reasonable way.

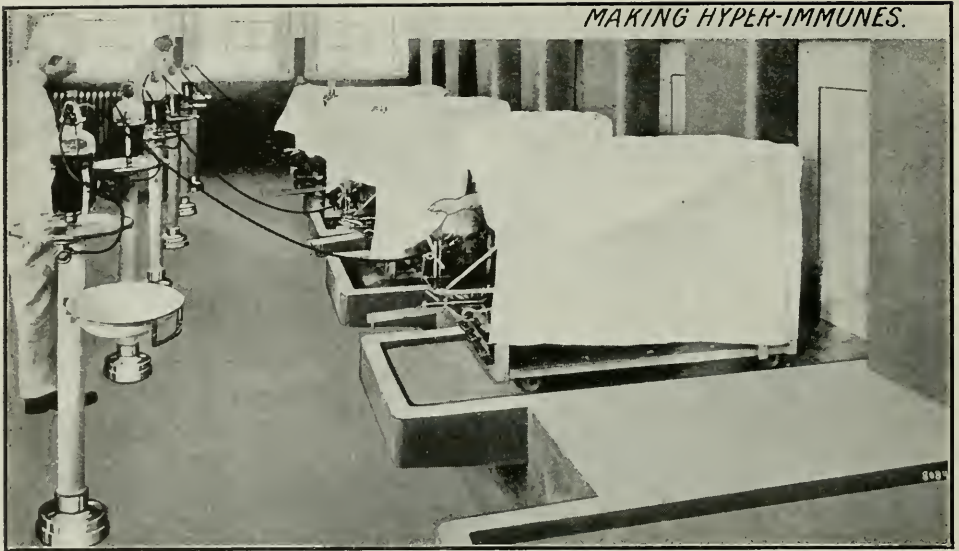
First of all, the breeders should have, if it can be obtained, a clear-cut and definite understanding with the Allied Buying Commission that the first step to be taken is to provide an open outlet for our products. We know there will be the question of finance to handle the product, because some of the congestion that has already taken place has been due to the fact that there has not been money forthcoming to purchase the product from the packers, the packers had practically used up all the credit they had, and were unable to face the country with further purchases. It remains as a fact that this country, if we are to sell our product to Great Britain, must largely finance the sale. Therefore, we must have an arrangement with the Government that funds will be provided, and there must be an understanding with those in charge of the transportation on the water that they will have sufficient accommodation to transport the product when ready for shipment. Following that and rather than before, it is desirable and necessary that there should be a clear-cut and satisfactory agreement reached with the Canadian packers that they will be in a position to give the service that the growers expect and must have.

I have tried in a very brief statement to state to you the problem as we see it with respect to the marketing of this year's hogs. We must have your help and the obligation rests upon us to fulfil our duty to the growers who are so nobly doing what they can in response to the country's call.



The World's Largest Serum Plant.

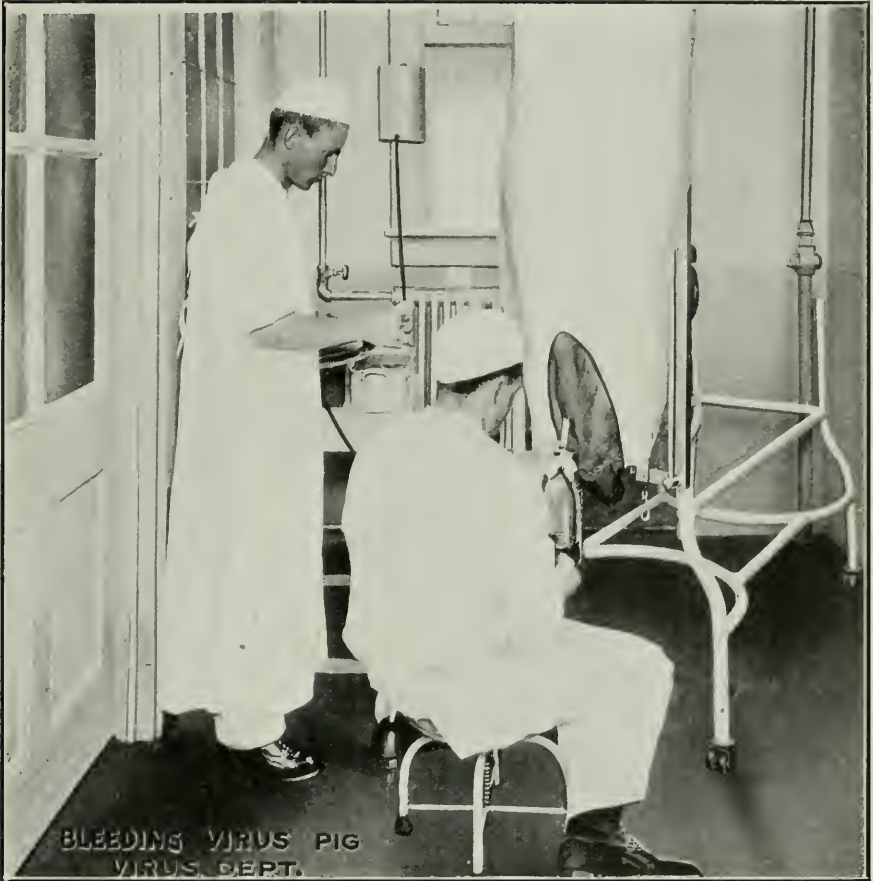
(See page 24)



A quart of hog cholera virus will not hurt an immune hog.



The Hyper-immune furnishes the serum to protect your hogs from cholera.



Collecting virus from cholera sick pigs.



Clean surroundings help to prevent disease.

Ontario Swine Breeders' Association

The annual meeting of this Association was held in Toronto, February 5th, 1913.

OFFICERS.

President JOHN I. FLATT, Hamilton.
Vice-President WM. JONES, Mt. Elgin.
Executive Committee H. A. DOLSON, Cheltenham; G. DOUGLAS, Mitchell.
Secretary-Treasurer R. W. WADE, Parliament Buildings, Toronto.

DIRECTORS.

A. LEITCH, Guelph.	GEO. DOUGLAS, Mitchell.
WM. JONES, Mt. Elgin.	W. F. WRIGHT, Glanworth.
J. I. FLATT, Hamilton.	CECIL STOBBS, Leamington.
H. A. DOLSON, Cheltenham.	GEO. GOULD, Essex.
W. W. BROWNRIDGE, Georgetown.	

REPRESENTATIONS TO FAIR BOARDS.

Canadian National, Toronto: H. M. VANDERLIP, Cainsville; S. DOLSON, Norval.
Western Fair, London: JNO. KELLY, Shakespeare; W. F. WRIGHT, Glanworth.
Central Canada, Ottawa: GEO. R. THOMAS, Ottawa; J. I. FLATT, Hamilton.
Ottawa Winter Fair: JNO. BRANT, Ottawa; G. R. THOMAS, Ottawa; J. C. STUART, Osgoode; WM. HARTON, Richmond.
Ontario Provincial Winter Fair: WM. JONES, Mt. Elgin; J. I. FLATT, Hamilton, P. J. McEWEN, Wyoming; J. D. BRIEN, Ridgetown.

FINANCIAL STATEMENT OF THE ONTARIO SWINE BREEDERS' ASSOCIATION. 1917.

Receipts.

Cash on hand as per last report	\$439 76	
Grant—Canadian Swine Breeders' Association	1,235 80	
Total		\$1,675 56

Expenditures.

Grants—		
Ottawa Winter Fair	\$75 00	
Western Fair, London	75 00	
Canadian National Exhibition	150 00	
Ontario Provincial Winter Fair	75 00	
Central Canada Exhibition	75 00	
Ontario Large Yorkshire Swine Breeders' Association ...	437 47	
Ontario Berkshire Breeders' Society	297 69	
W. R. Phillips, Printing Notices	1 50	
Auditor	3 00	
Floral wreath for the late John Bright	5 00	
Directors' Expenses	209 95	
Exchange on cheques	60	
Cash on hand	270 35	
Total		\$1,675 56

JNO. I. FLATT, *President.*
 R. W. WADE, *Treasurer.*

PRESIDENT'S ADDRESS.

JOHN I. FLATT, HAMILTON.

As President of your Association for the past year I have felt that it was pretty hard for the swine men to know just where they were at. We have many perplexing problems to face. Last evening Prof. Arkell, our Live Stock Commissioner, spoke to us in respect to the wide-spread propaganda to increase hog production, and that question in my mind stands out above all others. In the face of the food shortage it is a big problem and unless we can receive the very best price for our hogs next fall when we have them ready for market, a lot of us are afraid of what may happen. The markets may be full and crowd the price down when we have hogs to sell, and we will be forced to sell them at any price at all. Prof. Arkell told us that the Government were taking steps to finance that crop in the fall and see that the markets are not crowded, and further to see that bottoms are obtained to carry these away without causing any surplus on our Canadian market, thereby accelerating the market and giving us the price we ought to have.

There are other things we must consider, and one is cheap food. We can grow pastures, we can grow roots and so on, and can grow more hogs on the cheap foods which we must have in order to come out right. I was talking to one of our prominent seed men a short time ago, and he told me he feared a big famine in seeds, and I would like to advise the swine men in particular to secure all your seed corn and seeds of other kinds at the earliest possible date, because the best seed men in the country are predicting a big shortage. For myself, I know from corn tested some days ago which was supposed to be No. 1 seed corn, did not germinate 25 per cent. Watch out for seed corn and test it out—get your seed all in early.

I think we will help ourselves if we put in three or four acres of the old-fashioned hill corn and have some hard corn, as it cannot all go to silage, and then we will have the hard corn on hand next fall and can use the other corn for silage. All we can do is to do our best. We have had a very successful year considering, the finances will be about equal to last year, a little short in some respects, but we will make it up in others.

CONSTITUTION OF THE ONTARIO SWINE BREEDERS' ASSOCIATION.

1. This Association, incorporated under "The Agricultural Associations Act," shall be known as The Ontario Swine Breeders' Association.

2. The object of this Association shall be to encourage a general and constant improvement in swine breeding, and a better organization of the interests of the breeders of swine, throughout the Province.

(1) By co-operating with the Department of Agriculture.

(2) By holding meetings to discuss matters of importance to the swine industry of the Province.

(3) By co-operating with Exhibition and Live Stock Associations and Societies to advance the interests of live stock industry generally, with special reference to the interests of the swine industry.

(4) By holding or assisting to hold competitive exhibitions and educational meetings.

MEMBERSHIP.

3. The membership shall consist of those members of the Canadian Swine Breeders' Association who reside in the Province of Ontario.

REVENUE.

4. The Funds of the Association shall be derived chiefly from the Canadian Swine Breeders' Association, out of fees paid to said Association by persons who reside in the Province of Ontario, for the registration of pedigrees of swine and for membership.

MEETINGS.

5. The business year of the Association shall commence on the first day of January of each year, and shall end on the 31st day of December following. The annual meeting shall be held at such time and place as the Executive may decide.

6. A special meeting of the Association may be called by the Executive. Notice of each annual and special meeting shall be mailed by the secretary at least ten days prior to the date of meeting, to each member at his last known address. In case of a special meeting, there shall be given at the same time, a statement as to the purpose for which the meeting is called.

7. Representatives to Exhibition Associations, when such are to be appointed, shall be elected at the annual meeting. These representatives shall carry out such instructions as may be given them by this Association.

8. No person, other than a member of this Association shall be entitled to vote or take part at any meeting of this Association.

OFFICERS.

9. The board of directors shall be selected at the annual meeting, and the number of directors to which each breed is entitled shall be arrived at by the following method:

(a) The percentage which the Ontario membership of each breed is of the total Ontario membership, shall be ascertained, and these percentages shall each be divided by the factor ten (10). The resulting number shall represent the number of directors to which each breed is respectively entitled.

(b) In the case of fractions, the following plan shall be followed: (a) When the fraction resulting from dividing the percentage by ten (10) is at least seven-tenths (7-10) of a whole number, it shall be accounted a whole number, and the breed in question shall be allowed a director for said fraction; (b) In case the membership of two or more breeds taken singly is less than seven (7) per cent. of the total Ontario membership such breeds shall be combined, and the sum obtained by adding the percentages together, shall be divided by the factor ten (10) as previously specified.

10. The president and vice-president shall be appointed by the directors from among themselves at a meeting to be held as soon as convenient after the annual meeting. An auditor or auditors shall be appointed by resolution at a general meeting of the Association.

11. The Secretary-Treasurer shall be appointed from among the directors or otherwise, by the directors of the Association and shall hold office during the pleasure of the board of directors.

12. An executive committee shall be appointed to consist of the President, the Vice-President, the Secretary, and two other directors to be elected at the first meeting of the board following the annual meeting. The directors may also elect such other committees as may be necessary.

13. Five members shall be a quorum at any meeting of the directors, and three members shall be a quorum at any meeting of the executive.

14. The executive shall meet at the call of the President or in his absence, of the Vice-President, on at least three days' notice.

DUTIES OF OFFICERS.

15. (a) The duties of the Executive shall be to prepare recommendations for Board meetings, supervise finance, let contracts and arrange for printing and advertising, make necessary arrangements for holding exhibitions, and deal with such questions as have not been decided by the Board, and carry out all matters referred to it by the Board. The President shall be Chairman of this Committee and the Vice-President shall be Vice-Chairman. If necessary, the Executive may refer matters of detail to a smaller committee.

(b) The President shall preside at all meetings of the Board of Directors, and of the Executive, when present, and shall perform the duties usually appertaining to such office, and in his absence such duties shall be performed by the Vice-President, or in his absence by a Chairman to be chosen at the meeting.

(c) The Secretary shall attend and be present at the meetings of the Association, Directors, Executive and Committees, and keep a true record of the transactions and proceedings at all such meetings, in a book or books, which shall be open to the inspection of the members thereof at all reasonable times. He shall also as such Secretary conduct all correspondence, issue all press and other reports and notices and prepare for publication the annual report.

(d) (1) The Treasurer shall receive and have custody of moneys and valuable papers of the Association. He shall cause to be entered in books kept for that purpose a correct statement of all moneys received and disbursed on account of the Association, which books shall be open at all reasonable times to the inspection of the members thereof. The Treasurer shall prepare for the annual meeting a complete statement of the receipts and disbursements in which shall be shown the expenses of management, and shall perform such other duties in connection with the finances as may be required of him by the constitution and the rules and regulations, and by the lawful orders and resolutions of the Board.

(2) All funds shall be deposited to the credit of the Ontario Swine Breeders' Association, in a chartered bank of the Dominion of Canada, to be selected by the Executive, and all payments shall be made by cheque drawn on such bank by the Treasurer and countersigned by the President. In the absence of either of these officials, cheques may be signed by persons duly authorized by the Executive.

(3) Accounts may be paid when passed by the President and Secretary, or in the absence of either of them by such person or persons as the Executive may authorize, but all accounts must be submitted to the Executive for inspection at the first meeting following.

(4) Accounts for travelling expenses must be given in detail and all payments of \$2.00 and upwards must be accompanied by vouchers.

(e) The auditor or auditors shall annually examine and report upon all accounts affecting the Association or relating to any matters under its control, or within its jurisdiction, for the year ending on the thirty-first of December next, preceding each annual meeting, and shall verify the detailed statement to be annually prepared by the Treasurer in such form as the Directors may require, and report in duplicate upon all accounts audited by him and make a special report of any expenditures made contrary to the constitution, rules and regulations, and generally do and perform all acts devolving upon auditors, or which may be required by the Directors.

16. Expenses may be paid members of the Board of Directors attending Board meetings, and of members of duly appointed committees when performing the duties in connection with their office. Expenses to be railway fare and four dollars (\$4.00) per day.

17. When practicable the business of the Board or of any Committee may be conducted by correspondence.

18. Any part of this constitution or any by-laws of the Association may, subject to the Act of Incorporation, be amended or changed at any annual or properly called special meeting, by two-thirds vote of the members present at such meeting.

(a) Provided that any member desiring to introduce any addition or amendment to the constitution or by-laws shall so notify the Secretary in writing at least fifteen days prior to the date of any meeting of the Association, and shall enclose with such notice a copy of proposed addition or amendment. A copy of the proposed addition or amendment shall be sent by the Secretary to each known member of the Association ten days before the date of holding meeting.

19. The order of business at all meetings of this Association shall be:—

1. Reading Minutes.
2. Reports of Officers.
3. Reports of Committees.
4. Election of Officers.
5. New Business.
6. Adjournment.

Ontario Berkshire Breeders' Society

The annual meeting of this Association was held in Toronto, February 5th, 1918.

OFFICERS.

President FRANK TEASDALE, Concord.
Vice-President H. A. DOLSON, Cheltenham.
Executive Committee ... W. W. BROWNRIDGE, Georgetown; P. J. McEWEN, Wyoming.
Secretary-Treasurer R. W. WADE, Parliament Buildings, Toronto.

DIRECTORS.

ADAM THOMSON, Shakespeare. J. A. CALVERT, Queenston.
W. W. BROWNRIDGE, Georgetown. FRANK TEASDALE, Concord.
H. A. DOLSON, Cheltenham. P. J. McEWEN, Wyoming.
CHAS. BOYNTON, Dollar.

REPRESENTATIVES TO FAIR BOARDS.

Central Canada Exhibition: FRANK TEASDALE, Concord; W. A. WALLACE, Kars.

FINANCIAL STATEMENT

Of the Ontario Berkshire Breeders' Society, for the year ending December 31st, 1917.

Receipts.

Cash on hand as per last report	\$287 19	
Grant, Ontario Swine Breeders' Association	297 69	
Interest	6 20	
Total		\$591 08

Expenditures.

Grants:		
Ottawa Winter Fair	\$40 00	
Western Fair, London	50 00	
Canadian National Exhibition	100 00	
Central Canada Exhibition	50 00	
Ontario Provincial Winter Fair	100 00	
Directors' Expenses	7 05	
Auditor	2 00	
Carls-Rite Hotel, Meeting Room	3 00	
Cash on hand	239 03	
Total		\$591 08

Examined and found correct
this 21st day of January, 1918.

(Sgd.) G. DE W. GREENE,
Auditor.

(Sgd.) FRANK TEASDALE,
President.

(Sgd.) R. W. WADE,
Treasurer.

Ontario Large Yorkshire Breeders' Association

The annual meeting of this Association was held in Toronto, February 5th, 1918.

OFFICERS.

President J. C. STUART, Osgoode.
Vice-President R. GARBUTT, Belleville.
Executive Committee WM. JONES, Mt. Elgin; J. E. BRETHOUR, Burford.
Secretary Treasurer R. W. WADE, Parliament Buildings, Toronto.

DIRECTORS.

J. K. FEATHERSTON, Streetsville. J. E. BRETHOUR, Burford.
H. CAPES, Wyoming. J. C. STUART, Osgoode.
G. BARBOUR, Crosshill. R. GARBUTT, Belleville.
WM. JONES, Mt. Elgin.

REPRESENTATIVES TO FAIR BOARDS.

Central Canada Exhibition: J. C. STUART, Osgoode; GEO. B. BOTHWELL, Ottawa.

FINANCIAL STATEMENT

Of the Ontario Large Yorkshire Swine Breeders' Society, for the year ending
December 31st, 1917.

Receipts.

Cash on hand as per last report	\$402 96	
Grant, Ontario Swine Breeders' Association	437 37	
Interest	7 95	
Total		\$848 28

Expenditures.

Grants:—		
Ottawa Winter Fair	\$75 00	
Western Fair, London	50 00	
Canadian National Exhibition	100 00	
Central Canada Exhibition	75 00	
Ontario Provincial Winter Fair	100 00	
Auditor	2 00	
Carls-Rite Hotel for room	3 00	
Cash on hand	443 28	
Total		\$848 28

Canadian Sheep Breeders' Association

The annual meeting was held in Toronto, February 5th, 1918.

OFFICERS.

President W. A. DRYDEN, Brooklin, Ont.
Vice-President JAS. BRYSON, Brysonville, Que.
Executive Committee J. D. BRIEN, Ridgetown; LT.-COL. R. McEWEN, London.
Secretary-Treasurer R. W. WADE, Parliament Buildings, Toronto.

DIRECTORS.

J. D. BRIEN, Ridgetown.	H. J. A. EVANS, Lacombe, Alta.
LT.-COL. R. McEWEN, London.	S. F. TOLMIE, Victoria, B.C.
JAS. SNELL, Clinton.	W. B. BISHOP, St. John, N.B.
W. A. DRYDEN, Brooklin.	V. SYLVESTRE, Clairvaux de Bagot, Que.
A. J. McKAY, Macdonald, Man.	A. DENNIS, St. Norbert, Que.
F. T. SKINNER, Indian Head, Sask.	JAS. BRYSON, Brysonville, Que.

REPRESENTATIVES TO FAIR BOARDS.

Canadian National, Toronto: W. A. DRYDEN, Brooklin.
Western Fair, London: R. H. HARDING, Thorndale; H. M. LEE, Highgate.
Central Canada, Ottawa: W. A. DRYDEN, Brooklin; J. A. MUIR, Ex. Farm, Ottawa.
Record Board: JAS. BRYSON, Brysonville, Que.; JAS. SNELL, Clinton; LT.-COL. R. McEWEN, London.

FINANCIAL STATEMENT

Of the Canadian Sheep Breeders' Association, for the year ending December 31st, 1917.

Receipts.

Cash on hand as per last report	\$6,942 77
Hand books	49 50
Registrations	5,825 54
Memberships	1,822 00
Total	\$14,639 81

Expenditures.

Directors' Expenses	\$895 80
Grants:	
Ontario Sheep Breeders' Association	1,241 30
Manitoba Sheep Breeders' Association	151 60
Saskatchewan Sheep Breeders' Association	179 60
Alberta Sheep Breeders' Association	294 70
British Columbia Sheep Breeders' Association	55 60
Quebec Sheep Breeders' Association	1,031 70
Maritime Sheep Breeders' Association	194 50
Record Office, Balance Expenses, 1916	1,455 63
Record Office, for Conducting Records, 1917	1,800 00
Printing Records	896 91
Auditor	5 00
Printing Notices of Meeting and Annual Report	17 50
Reporter at Annual Meeting	12 00
Floral Wreath for the late John Bright	10 00
Stationery	11 25
Printing Lists of Members	33 25
Miscellaneous	10 50
Cash on hand	6,342 97
Total	\$14,639 81

PRESIDENT'S ADDRESS.

LT.-COL. R. McEWEN, LONDON.

I wish to compliment you, when everyone is so busily engaged in connection with every branch of agriculture during these strenuous times, that in such numbers you have answered the call to attend this annual meeting. The questions arising for your consideration are of the most vital interest to the sheep breeding industry throughout the whole Dominion of Canada. In fact, I believe there never has been a period in the history of the Canadian Sheep Breeders' Association when your advice and assistance were needed more than now. For this purpose, I take it, you have come here, and a hearty welcome is extended to you personally and to all suggestions you have to offer.

Sheep husbandry is appealing right now, perhaps stronger than at any time within your recollection, for consideration, not alone for the prices to be realised, but also for the little labor demanded in their care and the small quantity of grain required. Feeding grains around 3c. a pound and urgently needed for export must drive thoughtful live stock men into the breeding of an animal that gathers its own food more than any other, and that consumes the minimum of concentrates during the winter feeding period. No argument to-day is necessary—the verdict has been pronounced, and a widespread feeling exists for increased operations in sheep breeding.

In a general way, sound breeding ewes have been retained in breeding flocks, and the proportion of ewe lambs suitable for breeding purposes that have gone to slaughter has been very small indeed. Unfortunately, in the rush to get into the business, too many of these ewe lambs were bred last fall, and this must result in the deterioration of the flock. I admit that ewe lambs strong and well forward, in small flocks, and when especially cared for, may raise a proportion of fair lambs, but I have yet to meet the successful sheep breeder whose experience leads him to advocate this practice.

Another feature to which your attention is particularly directed is the class of ram in use. With the increased number of flocks established there has not been the ample supply of good purebred sires, but three or four owners of small flocks will do well to combine in the purchase of one high-class ram, than that each, either on the score of expense or the difficulty in locating one suitable, should utilize a grade; or, what is just as bad, a purebred that can be bought and is only worth the price of a grade. It is beyond dispute, and is accepted in the breeding of all live stock, that no breeder ever made a reputation, except a bad one, by the use of an inferior or grade sire, and in sheep-breeding this is true to as great an extent as it is when applied to horses, cattle, and swine.

Since the beginning of this war wool has occupied a very pronounced place in the list of necessities. Woollen clothing is essential to the health of the troops, and supplies from far-away South Africa and Australia have been drawn upon to supplement stocks in Canada and United States. Britain has forbidden the export of cloths for domestic use containing less than 40 per cent. of cotton, and the manufacturing of woollens in Canada has assumed much greater importance. Through the introduction of the machinery for all the processes of manufacturing all the wool grown in Canada, improved home markets would obviously be established, employing Canadian capital and Canadian labor in the country where the wool is grown.

In the *Textile Journal*, the organ of the woollen manufacturers, have appeared articles advocating an embargo on the export of wool, but in view of the effect on

prices of such an order three years ago, during the short period it was in force, I feel confident that breeders of sheep would be justified in entering the strongest protest against such a restriction being again instituted. Further, the co-operative spirit in the various Provinces in the assembling and selling of wool has become firmly established, and the results obtained are reported as being so satisfactory that consideration is now being given to its extension by which all provincial organizations may join in selling through one central assembling point. If you deem it advisable to express any opinion on such a movement some details can be laid before you. It is with great satisfaction that we now find the health of Canadian flocks is so good, and that their freedom from contagious disease secured the suspension of the dipping regulations required for sheep entering the United States.

INTERNATIONAL INTERCHANGE OF PEDIGREES.

The question of an interchange of pedigrees between the American and Ontario Associations was brought up by Mr. Follett, and after a very full discussion it was moved by Mr. Brethour, seconded by Mr. Christie, "That the Executive Committee be empowered to select representative men from each breed that they may carry out the object of reciprocity of pedigrees." Carried.

ADDRESS.

H. S. ARKELL, LIVE STOCK COMMISSIONER, OTTAWA.

I hope I scarcely need an introduction to a gathering of sheep men. I remember once, when starting life in a more or less public capacity, having been introduced as having been brought up in a sheep pen—I hope you will still continue to regard me as one of your own number because perhaps my first experience and first teachings in live stock were given to me by my father, who was, as perhaps some will remember, a breeder and judge of sheep.

I do not know that I should take any length of time in speaking to you this evening. There are, perhaps, two or three things, two at least, that may appear of some little consequence. I refer, first of all, to the action which has been taken at length, after a period of years, in connection with some concrete effort being made to establish a co-operative organization for the sale of Canadian wool. As you are aware, delegates have been invited to attend a meeting which is being held on Simcoe Street, Toronto. It is hoped that we may have an interchange of opinion and an agreement of conclusion reached as between the East and West, between province and province, so that in the end we may be able to give effect, I mean the sheep-breeders of Canada, to the disposition and temper that has grown up among them during the past two or three years, to find a way to market their wool so they may receive the last cent. that the wool will allow.

There was a time when, as you know, the farmer carried his wool to market in a big sack and offered it to the local miller. There was a time a little bit later when the dealers solicited purchases all over the country, and you and I know the toll that was taken by those men and the small return that we got as growers as a result of that imperfect and out-of-date system of purchasing. More than that, it is questionable if the product was really worth a great deal more. You will

agree with me that there needed to be a very great improvement in the quality, in the classification, in the grading of the wool, if it was going to be worth while from the standpoint of receiving a good price for it. I need not go into the history of the last three or four years' work, as it has been published in all the farm journals in the Dominion. I believe the time has come when, in some more or less concrete fashion, the growers in Canada can find a way of standing on their own feet, taking it out of Government supervision, except for the assistance we may continue to give you, but at least you will take the matter into your own hands and make for a degree of prominence we have never yet had. I will not continue the discussion along that line. I believe the meeting itself suggests the importance of the sheep industry in Canada at the present moment.

It has been said to me since coming here that sheep farms and ranches will make more money than in any line of breeding at the present time. At least this can be said, that the sheep industry in this country has never received the stimulus and inducement it is receiving at the present time.

There are those who feel that the wool of Canada should be reserved for the use of the Canadian miller, and there are those who are saying other things, and it has somewhat of a powerful influence to emphasize an embargo against the export of Canadian wool. I need not go into detail as to what this means, nor as to the manner in which this influence is being exerted. It is our view, however, that they have emphasized such an embargo, and if they get their way they will, perhaps, be able to corral this season or next season's output. But what after that—they will have very little wool to corral.

I doubt if there is any one thing that will so stop production in Canada as repression of that kind. I doubt if there is any one thing that is more likely to tend to discouragement of the breeders of Canada, not only in wool, but in live-stock, than the repression of the open market for our product. I believe there is one thing the Canadian breeder should contend for, one thing that is going to guarantee them the price they should receive, and that is the opportunity to sell where they can get the biggest price—on the world's market. I think they should expect that right. I think if a larger price can be paid in the United States for wool than in Canada, why should you not get that price? If they can get bigger prices for their finished wools in Great Britain or in the United States than in Canada, why should they not ship there? I doubt if the Canadian breeders owe any particular obligation or have received that kind of support that should place them in a position or require them to face the obligation of meeting the desires or the convenience of any other institution in the country which will reduce the price that should be received if you had an open market upon which to sell your product.

I have worked steadily against every source of pressure in different directions—pressure which has come from the towns more than from the country—and it has come from sources from which it would not be expected, sources that have not been well informed as to its influence on the restrictions of the live stock industry. I believe in the open market for the product of the farm. In that direction I am satisfied that every man here will make a response of which the country may well be proud. I doubt if there is any class of people in Canada who work longer hours or under more serious difficulties than the farmers of Canada, considering the price of feed and shortage of labour. They should get every encouragement and be given every advantage in connection with the production of stock and output from the farm, and I believe the promise for the future is that we may expect the maximum return from the farmers of Canada.

THE PRESIDENT: I am sure that any members of the Canadian Sheep Breeders who care to go to the meetings at the Dominion Wool Warehouse, 128 Simcoe Street, will be welcome. We have with us to-night Mrs. Brandt, representing the American Sheep Breeders' Association, and we will be very glad to hear from Mrs. Brandt.

MRS. BRANDT, Chicago, Ill.: I came here to enjoy myself and not to make a speech. I was delighted to be called an Ally, because it is with a message of friendship that I come to Canada at this time. I was very much pleased with the remarks of one gentleman who said he had sensed a very friendly spirit in the United States, and it certainly exists and there is no reason why it should not exist. I want to make a tangible offer—if we American Sheep Breeders can do anything at all to help you in the registration matter that you are speaking about—why, come along and ask. We are here to help.

DR. MCPHERSON: As a result of the action that has been taken in the sheep breeding business, the interest manifested in Nova Scotia is very great at the present time. For the last three years or so we have had co-operative sales of wool and the price has been advanced from about 17c. to an average last year of 71½c. a pound. That is a matter that must not be allowed to drop. If the Department is going to place the responsibility on the shoulders of the farmers themselves, they must take it up and not allow that good work that has been done, and the greatest impetus the sheep breeding industry has ever received, to be spoiled. It is to be hoped that some way will be found to-morrow of assisting the Association. At this meeting I would like to mention two points: We have been receiving some stock for the improving of our native breeds in Nova Scotia, and I want to say that improvement has been done and greater improvement is to be looked for, and we shall want in the future only the best you can give us. Down there we need sheep with especially strong constitutions and good thick fleece. We have a climate that is a little different from here, with late falls and early springs, and we have lots of rain. Unless the animal is strong and has a good dense fleece on its back it will suffer from the inclemency of the weather. I bring that to your notice so if you want to send any stock to the Maritime Provinces you must look after and fulfil these conditions in order to be successful in that country for the selling of your sheep.

MR. W. R. REEK: I came to these meetings with two objects in view: First, I am very much interested in the wool movement; and, second, we are in the same condition in New Brunswick as they are in Nova Scotia. We will require a large number of pure-bred sheep in the next two or three years. New Brunswick is a natural sheep country, with large areas; and our requirements are similar to those of Nova Scotia. I was considerably interested in the subject of pedigrees to-night because there is more or less difficulty in that direction, and we will not relax our efforts until we have set up a sheep industry in that Province. We have a number of men who have had considerable experience, who have dropped out. There is no reason why New Brunswick should not carry five times as many sheep as now. We expect to get foundation stock in Ontario and Quebec, and we are prepared to pay every cent they are worth, but we certainly want good value—and we want that pedigree. We want sheep free from disease. We have had a little difficulty that way, and we are going to be very careful in the future. You will find our live stock men picking up carloads next fall I expect. In regard to the wool movement, I regard that as the best stimulus we have for the sheep industry in Canada. In Prince Edward Island there has never been anything started which has aroused such interest and been of such educational value to the sheep men and which

started them thinking—and if you start a man thinking seriously you have accomplished pretty nearly the whole thing. We expect close co-operation in getting a good class of sheep, and also hope to secure, through Mr. Wade, good shipping arrangements.

MR. MCKAY: So far as the sheep industry has progressed in Manitoba, I may say that the percentage of increase in the sheep population in the last few years has been considerably greater than in any other Province in the Dominion, both pure-bred and commercial stock. The previous speaker said something about the health of the sheep in the eastern part of Canada. I want to make a suggestion to the members who are here to-night, and that is: that they clean up their flocks. I have heard of a good many cases, and have had personal experience where sheep have come from the Province of Ontario that have been afflicted with parasites of several different species. That is well known in the West, and you will find it will be the greatest detriment to your trade with the Western Provinces. As an Ontario association, I thought you should put forth every effort to get the sheep cleaned up at as early a date as possible.

MR. W. H. ENGLISH: I have listened with interest to the discussion that has taken place here to-night. When you look over a body of men like this, who represent every part of the Dominion of Canada, it always makes the red blood run strong in your veins. You have come at me at the wrong time, there are a lot of men at this meeting I would like to hear speak, and I think they would like to hear themselves speak. (Laughter.) We are here representing every Province in the Dominion, and have considered a great many things as regards agriculture, and we have to get together and get what we want as farmers of Canada; and if we do, there is nothing in the way to hinder agriculture in Canada from being the prime industry. But unless the men get together, we will be where we have been for the last thirty years—we will get it in the neck.

MR. F. T. SKINNER: I quite agree with what Mr. English says. If the farmers of Canada stick together they will be apt to get what they want. I dare say a good many do not understand the extent of the Prairie Provinces. The rich prairie grass is very suitable for sheep, but up to a few years ago there was nothing in sheep. A few years ago sheep were never sheared all summer, but things have changed a good bit lately. I found a statement of my wool sales in 1913, and the wool was shipped to Hallam, in Toronto, and netted me 13c. to 23c. per lb. We thought we were doing pretty well to get that, but to-day in Saskatchewan the Provincial Government has taken hold of the marketing, and they gave us entire satisfaction last year. My crop netted around 62c. per lb. All this rich prairie grass has been going to waste, as it is burnt by prairie fires every fall. It is a valuable grass for sheep, and they do well on it, but it has not been utilized and never would be unless there is allowed some profit to accrue to the producer. I do not think we had one sheep on fifty acres in the Western Provinces. I have seen a boy who was raised in Saskatchewan who came to my place and asked what that was, if it was a sheep, for he had never seen one before. And there was a young woman last summer, twenty-one years of age and a teacher, and she said she had never tasted mutton—she never had a chance. There is no reason for the sheep industry not to advance in the Western Provinces, there is enough grass going to waste to feed sheep enough to clothe all the Allied armies with clothing. What would Canada be making to-day if the sheep industry had been encouraged and we were to get 62c. per lb. But the old conditions have passed and gone and now the thing is going strong. They are talking of cutting off the open market, and that will be a great calamity to Canada if they do.

MR. WILSON: We do not breed pure-bred sheep in Saskatchewan. We are only raisers of mutton and growers of wool. However, I realize the situation very fully from the rancher's standpoint, and I think you as breeders of purebred sheep also realize that the two branches of the industry are very closely connected, and we feel out there that anything that tends towards the furtherance of our business, or to the benefit of our industry as a whole, must reflect on Ontario as well. I think you will agree with me when I say that if we are prosperous on the ranch you naturally reap the benefit of that prosperity, in so far as it increases the market for purebred stock. We depend entirely on the purebred breeder for our breeding rams, and as a common rancher I feel it is a privilege to be here and meet you. I think you all know the circumstances under which the delegates from the West are here, they have been invited by the Live Stock Branch for the purpose of organizing for the better handling and marketing of our wool. I also think I am safe in saying that you will all be behind that movement, at least, I hope you will. I think in the West we are a little further advanced in the co-operative organization that you are in the East. The West has been the pioneer in the movement. I do not think the Western men will claim that is due to superior business foresight. We have been driven into co-operative organization by the mere fact that we have been isolated, and more or less at the mercy of the middle man and of the manufacturer. This is an age of co-operation, and I think this is a very opportune time for the sheep men to get together and so co-ordinate their forces as to get a good deal better results for their produce. I do not think a better argument could be advanced in support of co-operation than the fact that the United Grain Growers of the West have been able to place their President in the Dominion Cabinet as Minister of Agriculture. That is the biggest boost that co-operative organization ever received in Canada. I am only a rancher, and have not a very keen interest in the purebreds, and as the co-operative end has been covered very efficiently by your Live Stock Commissioner I can only say, on behalf of the other ranchers represented here, that we very fully appreciate the privilege of meeting here to-night.

MR. BISHOP: I am pleased to be here to-night. I feel a little like what Mr. Arkell said about being raised in a sheep pen. I have been raised in a sheep camp, and have been camping on the western prairies for the past twenty-five winters, and have lain out in many a blizzard. I was just thinking that if our manufacturers would go out in the blizzard and see the risk we have to take, they would not be so anxious to put on an embargo. I bought four carloads of purebred rams from you last summer, took them to the West and disposed of them to our sheep men, and I believe every man is satisfied. Some of the good farmers said they were glad the Western people were going to buy their stock, as it opened up a market nearer home. While they can get rid of their stock by selling them in the States, they felt they would prefer to sell to the Canadians. I can say I appreciate the kind of work that was being done by Mr. Arkell last summer in connection with the wool sales. I found him to be a good, honest and honorable man, and also the men he had with him. They are the kind of men we like to deal with. We are here for the purpose of organizing, and while we are here we should get together and go to work. The Government has helped out and carried us along for a few years, and we should now be strong enough, with the help and experience we have had, to effect an organization of our own and get our machinery together. We can accomplish anything we want if we work together.

CAPT. EVANS: Since we were here a year ago I have travelled through the Province some 8,000 miles and have got in touch with the sheep men and with some we did not know were in existence. The increase in our registration member-

ship is 50 per cent. I think the sheep industry is better than it ever was. If things go on the same a year from now, we hope to make it 100 per cent.

MR. RICHARDSON, Calgary: The splendid position the Province of Alberta is in at the present time is no doubt helping to oil the wheels and help the breeders at the present time, and a good many of the dollars that were got from the Calgary oil fields have come to the breeders of Alberta, especially the sheep breeders, through the splendid work of the Live Stock Branch in connection with our co-operative marketing of wool. While so many breeders are present I want to take this opportunity of expressing our appreciation of the splendid work that has been done, and the co-operative work has been carried further in the last four years than it probably would have been in twenty years without your help.

DR. TOLMIE: The sheep industry of this great country has been making very rapid strides in the last few years owing to the high prices for the various products—particularly wool. Up in our country, west of the mountain and on the prairie, I find a number of new flocks have been started, but owing to the scarcity of breeding animals the extent has not been as great as might be desired. We felt that the land was classified to a certain extent, there were certain ranch lands that were not suited for homesteads. If we can guarantee the rancher that he can carry on his work without being disturbed very much better results can be expected.

I also listened with some interest to the problems of the innocent Ontario breeder (laughter). After living in the west we appreciate what the Ontario breeder does. Then we are all strongly in favor of the co-operative movement. It is only by co-operation that we can hope to put up a fair fight with the manufacturers who buy our wool from us. By co-operation we can not only extend our developments but it will act as protection. According to our present dog law any dog trespassing on property where sheep are, may be shot on sight if it has not a tag attached to its neck. And for your interest I may say that since the passing of that law, the manners of some dogs in British Columbia have improved very much.

Ontario Sheep Breeders' Association

The annual meeting of the Association was held in Toronto, February 6th, 1918.

OFFICERS.

President JAMES DOUGLAS, Caledonia.
Vice-President GEO. L. TELFER, Paris.
Executive Committee J. D. BRIEN, Ridgetown; J. W. SPRINGSTEAD, Abingdon.
Secretary-Treasurer L. W. WADE, Parliament Buildings, Toronto.

DIRECTORS.

Cotswolds J. D. BRIEN, Ridgetown.
Leicesters JAS. DOUGLAS, Caledonia.
Lincolns E. ROBSON, Denfield.
Oxfords J. E. COUSINS, Harriston.
Shropshires W. H. BEATTIE, Wilton Grove.
Dorsets CECIL STOBBS, Leamington.
Hampshires GEO. L. TELFER, Paris.
Suffolk JAMES BOWMAN, Guelph.
Southdowns J. W. SPRINGSTEAD, Abingdon.

GENERAL DIRECTORS,

H. M. LEE, Highgate.

W. WHITELAW, Guelph.

REPRESENTATIVES TO FAIR BOARDS.

Canadian National Exhibition: J. D. BRIEN, Ridgetown.
Western Fair, London: J. KELLY, Shakespeare; JAS. SNELL, Clinton.
Central Canada Exhibition: JAS. DOUGLAS, Caledonia; W. H. HARTIN, Richmond.
Ontario Provincial Winter Fair: GEO. L. TELFER, Paris; JOHN, KELLY, Shakespeare;
JAS. DOUGLAS, Caledonia; W. WHITELAW, Guelph.
Ottawa Winter Fair: JAS. BRYSON, Brysonville, Que.; LT.-COL. R. McEWEN, London;
GEO. B. ROTHWELL, Cen. Exp. Farm, Ottawa; E. S. ARCHIBALD, Cen. Exp. Farm, Ottawa.

FINANCIAL STATEMENT

Of the Ontario Sheep Breeders' Association for the year ending December 31st, 1917.

Receipts.

Cash on hand as per last report	\$1,256 47
Grant from Canadian Sheep Breeders' Association	1,241 30
Interest	20 05
Sale of sacks and twine	140 18
H. V. Andrews, Wool, \$3,628.56; Sacks, \$12.00	3,640 56
Appleby & Daley, Wool, \$169,124.63; Sacks, \$549.00; Insurance, \$75.00; Exchange, 10c.	169,748 73
Total	\$176,047 29

Expenditures.

W. R. Phillips, Printing Notices	\$1 50
Auditor	3 00
Directors' Expenses	108 20
Carls-Rite Hotel, Room for Meeting	10 00
Grant to Red Cross Association	200 00
Executive Meeting	32 00
J. D. Brien, C.N.E. Meeting	14 00
Jas. Snell, Western Fair Meeting	7 85
Grant to Ottawa Winter Fair	100 00

Expenditure.—Continued.

Floral Wreath for late John Bright	\$5 00
T. R. Barber, Printing Signs	6 50
Peter White, Respondent's Charges <i>re</i> Hogle Case	81 60
Grant to Western Fair	100 00
Grant to Ontario Provincial Winter Fair	300 00
Exchange on cheques	95
Smart-Woods, Sacks and Twine	1,647 85
Labor as per pay roll	842 17
Insurance, Premium, \$70.31 and \$312.97	383 28
Baines & Peckover, 3 Warehouse Trucks	40 80
Hotel Bills	161 00
Bell Telephone, \$29.80; Telegraph, 62c.	30 42
<i>London Advertiser</i> , Advertising	75
Travelling Expenses, Toronto to Guelph	12 00
Robert Stewart, Supplies	33 65
Bond Hardware Co., Supplies	47 15
Appleby & Daley, Refund of Overcharge on Wool, \$182.02; Refund on Insurance, \$19.40	201 42
Freight Charges	209 52
Express Charges	28 46
Stationery, \$7.50; Sundry Supplies, \$20.35	27 85
Shippers as per report	166,656 60
Shippers (Ungraded Wool not in report)	704 80
Monteith Brothers (not in report)	2,865 45
Shippers (adjustments)	56 28
Cash on hand	1,127 24
Total	\$176,047 29

Examined and found correct,
this 19th day of January, 1918.

(Sgd.) G. DE W. GREEN,
Auditor.

JAMES DOUGLAS,
President.
R. W. WADE,

PRESIDENT'S ADDRESS.

JAMES DOUGLAS, CALEDONIA.

There are a few points I wish to draw your attention to for your consideration. I need not say much about the profits arising from the sheep industry as you are aware that the business is on a sound basis at this time. There is, however, a great necessity for more sheep, both for food and clothing, and there is an unlimited market for both commodities. The average fleece to-day is worth as much or more than could be obtained for the lambs a few years ago, and the great scarcity of wool will warrant a good price being paid for years to come. This should encourage every farmer to keep at least a few sheep to help weed his farm and help pay his taxes as well as grow food and clothing which are so badly needed at the present time.

I would like to mention the co-operative wool sale conducted by this Association last year which was such a great success. This was a new venture in Ontario, and a great many experiments had to be carried out, and this gave a tremendous lot of work to your Secretary. Mr. Wade is not afraid of work, but I wish to say right here, that while there was an Executive to consult, yet the burden of the work was left to the Secretary, and the success of the undertaking was due very largely to the energy and ability of Mr. Wade. This meeting should recognize the work done in a more emphatic way than a mere resolution being passed. There was not much time even for sleep when the wool was coming in and at the time of sale. The building for this undertaking was hurriedly

arranged and was not just adapted for that kind of business. Many changes could have been made. However, it is past, and while some may not be satisfied with the results—I have not met any of them. There were cases of slight differences in weights, but you all know scales will differ. Ours was a new scale, and apart from that you were shipping an article that will shrink badly in transit. On the whole, we boosted the price for every farmer in Ontario, whether he sent his wool to us or not. If there is anyone here who feels that he was not well treated, I would like to hear it.

Let me briefly refer to the damage done each year to the industry by the dogs. You will agree with me that sheep are greatly needed, and have been advancing in value each year, while the cur of a dog is no more valuable than he ever was, and we have not seen fit to use him for food yet (laughter). To protect an industry that is very essential, I would suggest that a higher tax be put on all dogs in order to discourage the keeping of so many useless curs, and that this tax be made high enough for years to come. The more sheep kept, the more damage will be done, and there should be some arrangement made that sheep should be paid for when injured or killed by dogs, and that money should be paid out of the general funds of the municipality. Valuers, who know the value of sheep, should be appointed, and in case of litigation the matter should be referred to the valuers.

ADDRESS.

T. REG. ARKELL, OTTAWA.

As you are aware, a conference is being held in Toronto, composed of delegates from all the Sheep Breeders' Associations and Commercial Wool Growers' Associations of Canada, in an effort to form, if possible, an organization that will act as the selling medium for the different Associations which are developed over the country. This organization will simply act as an overhead operating concern to actually dispose of the wool of those Associations that have facilities for collecting and storing the wool, and also to provide facilities for many of the Western Associations that do not have the facilities there for actually warehousing the wool. So that at any place, on the ranch, on the farm, or the central collecting depot, the wool can be kept and graded.

With respect to the Ontario Association, and speaking of the organization to obtain a medium for selling and also the collection of the wool and the storing of it, it would be under the control of the members of the Associations in exactly the same fashion as in the past. That arrangement can be developed whereby this overhead operating method will prepare storage for the Ontario wool, if the Ontario Association has not adequate storage facilities. The necessity for such organization appears very strong at the present time, on the basis that wool is not purely a Provincial product, in fact, our Canadian wool is an international commodity.

Most of the mills are within a small circle, near Toronto or between Toronto and Montreal, therefore, a separate selling agency would be more or less a duplication of effort. It has been felt, in the past, by many of the Associations, that although they were getting very much more by co-operation, still under the old plan of sealed tender or by auction sale, they were not getting as much as they might get. There must be storage facilities for the wool that cannot be sold

readily, or for which there was no demand at the time of collection. Many mills use only one grade or perhaps several grades and besides that, many of the mills in our country do not use our long wools. The essential industry, as far as the wool manufacturer in this country is concerned, is the carding industry, in which they use the most profitable short wools. The carder of long wool in competition with the wool that is combed, cannot pay such high prices and that is the reason why our long wools are being exported to the States and even under the low duty there was, our wools went to the United States. An endeavor should be made to place our wool upon the British market, and as that fact is recognized that our combing wools at the present time, or a large percentage of them, command the highest price, we must export. The different Associations have felt it would be well to place an agent on the foreign market under the control and supervision of a central agency, at very much less expense and actually attain a more economic sale. Last year several shipments of wool were traced, wool that had been sold by sealed tender, and it was found that the wool was turned over for export—that is, the long wool was—within two or three weeks, at a considerable profit to the dealer. While the dealer must get his profit as long as he is there, and he must stay alive, still we as growers cannot very well see the necessity of giving him a profit that we might as well get ourselves. Through a central agency, as growers we could sell direct and consequently lower the cost of selling, and would keep out the dealer's profit to a considerable extent; even if we must consider that profit more or less legitimate—sometimes.

I may say further in that respect that a meeting was held the other day, and while no action was taken, until the Ontario delegates can get there, I am delegated to say that it is hoped some action may be taken and an arrangement made whereby we can get greater unification of effort. If it does not come to-day, it will certainly come sometime if the sheep industry is not going back to the old plan, which it may sooner or later if we have the foreign markets closed to us. Without unified effort we may drop back to the old plan where we sold wool for 5c. to 10c. a pound.

RESOLUTIONS.

Moved by MR. J. D. BRIEN, seconded by MR. JAS. BOWMAN: "Whereas an invitation has been extended to this Association to join with representatives from Wool and Sheep Growers' Associations of Western Canada, Quebec and the Maritime Provinces, in a National Convention which is convening in this city at the Dominion Government Wool Warehouse, 128 Simcoe Street, and whereas the object of said Convention is that of the formation of a National Organization of Wool Growers' Associations which would act as a central clearing house or selling agency for all wool growers throughout Canada; be it therefore resolved that this Association appoint a delegation of four members, and that these delegates be empowered on behalf of the Association to lend their support to the movement." Carried.

Moved by MR. J. M. GARDHOUSE, seconded by MR. BOWMAN, "That the four delegates to attend the meeting of the wool growers be: Mr. Jas. Douglas, Mr. Geo. Telfer, Mr. J. D. Brien and Mr. W. A. Dryden." Carried.

MR. ELLIOTT: We have often read that opportunity knocks once at the door of every man and if that opportunity is embraced it will be the foundation of success. It does seem to me that opportunity is knocking at the door of the

sheep breeders of Ontario when they are asked to send delegates in order that we shall attain larger organization to properly manage the sale of the product of the sheep industry throughout the Dominion of Canada. We in Ontario are pleased to think that we are the centre of the sheep breeding industry of the Dominion, and I rather think that may be the case but we are not big enough to ignore the Association that will stand for the interests of the sheep breeders of the country. We are living in abnormal times for sheep products, and we don't know how long that will last. We know the difficulty under which we lived in times past. I have sold wool for 6c. a pound. We know we are not united. We are meeting combinations on every hand, and the Ontario Sheep Breeders' Association is brought face to face with the united textile men and woolen men and it is necessary that we should be united. Then it is a fact that we are not as careful sheep breeders as we were fifty years ago. I bought lambs fifty years ago and paid \$100 a head, and I wouldn't have a ram run amongst them.

I would ask if the wool that is put on the market, is washed clean and is it taken off the sheep in the right manner and properly wrapped up, or is it taken off in a haphazard way, to the detriment of every man who has a fleece of wool? We should know more about the breeders, where they are, so we may cater to their wants or remove their prejudices by showing them they are wrong. We know there are a large number of sheep breeders who are handling a breed of sheep they ought not to handle. Their land is not suitable and the climatic conditions are not favorable.

A number of years ago there were sheep from Ontario, quite a large number of breeding rams particularly, great, big, handsome, high priced Leicesters (Member: They have gone out of date)—laughter. I know of a man who had these sheep, and who lived on the beautiful hills, and his lambs would be less than 50 lbs., because they had not been cared for, and the climatic conditions were not such as would encourage the breeding of them. They were misfits.

Let us unite. In unity there is strength and without union there is weakness.

LT.-COL. McEWEN: It seems to me that the organization and constitution of the Ontario Sheep Breeders' Association is not in that satisfactory condition to-day to bring about the best results in this Province. There is that lack of touch between the mutton producers and the breed Associations, and it would be well if we could do something by which the membership could be arranged so that the man, who is in the business from a commercial standpoint, could become a member of this Association. We have evidence here to-day of people who are as much interested financially as we are in the purebred part of the business, and they would like to take part in the discussion and in the business of these meetings.

I suppose you know the fact that any person who is recording sheep and becomes a member of the Canadian Sheep Breeders' Association, automatically becomes a member of the Ontario Sheep Breeders' Association. I do not know any man who is in the pure-bred business who is not a member of the Ontario Sheep Breeders' Association. I think the constitution should be amended, and encouragement be given to those who are not in the pure-bred business, to become members of the Ontario Association.

If a small fee is charged and an effort made to bring into the Association every man who is interested in sheep and has a flock on his farm, it will add to this Association and make one big and strong Association in the Province.

Moved by MR. J. D. BRIEN, seconded by MR. BOWMAN, "That the question of fee be referred to the Directors." Carried.

J. M. GARDHOUSE: I believe there is a movement on foot to amend the Dog

and Sheep Act. One proposal is to ask the owners of dogs to tie the dogs up from sunset to sunrise. That may be drastic or it may not be so. Another suggestion is that all dogs throughout the Province shall be tagged. It was stated that that might be alright in towns and villages, but in the country districts it could not be worked out very well. By assessors being instructed to carry dog tags, that could be carried out. This would not only bring in a revenue but would do away with a lot of miserable curs that are good for nothing. We can do without dogs, but not without wool and meat at the present time. You will agree with me when I say there is no live stock raised on the farm that gives such splendid returns as do sheep. It behooves us to do whatever we possibly can to assist and help in this great industry. There never was a time in the history of this great Province when so much should be done and so much attempted as at the present time. If we would accomplish great things we must attempt them.

If these recommendations are not too drastic, I would urge the Committee appointed to wait on the Government, to press for an amendment of the Act accordingly.

Moved by MR. J. M. GARDHOUSE, seconded by LT.-COL. McEWEN, "That the matter of the amendment to the Dog and Sheep Act be left to the Executive of the Ontario Sheep Breeders' Association who shall attend on the Committee of the Legislature who will deal with this Act."

MR. GARDHOUSE: The President said he had sheep worried last year, and he fared better than lots of people because he got full compensation, but we all know it is not only the sheep that have been worried that are injured but it affects the entire flock. It destroys the value of that flock of sheep. I am quite satisfied your Executive will take that matter up satisfactorily.

MR. BAILEY: I came down here this morning with the express purpose of being present at this discussion in order to get the feeling of the sheep breeders of this Province on this very subject of the dog question. There is no question about the dog being a serious menace to the sheep breeding industry of Ontario and every effort should be put forth to protect the sheep. If the Committee comes before the Minister of Agriculture, they will get a very sympathetic hearing, and I will be only too glad to do anything I can to help you out.

CONSTITUTION OF THE ONTARIO SHEEP BREEDERS' ASSOCIATION.

1. This Association, incorporated under "The Agricultural Associations Act," shall be known as the Ontario Sheep Breeders' Association.

2. The object of this Association shall be to encourage a general and constant improvement in sheep breeding, and a better organization of the interests of the breeders of sheep throughout the Province:

(1) By co-operating with the Department of Agriculture.

(2) By holding meetings to discuss matters of importance to the sheep industry of the Province.

(3) By co-operating with Exhibition and Live Stock Associations and Societies to advance the interest of live stock industry generally, with special reference to the interests of the sheep industry.

(4) By holding or assisting to hold competitive exhibitions and educational meetings.

MEMBERSHIP.

3. The membership shall consist of those members of the Dominion Sheep Breeders' Association who reside in the Province of Ontario.

3.(a) Any other resident of the Province of Ontario not a member of *Canadian Sheep Breeders' Association*, but who may be admitted to membership on application of membership fee which shall be fixed by Directors of Ontario Sheep Breeders' Association.

REVENUE.

4. The funds of the Association shall be chiefly derived from the Dominion Sheep Breeders' Association, out of fees paid to said Association by persons who reside in the Province of Ontario, for the registration of pedigrees of sheep, and membership fees.

4. (a) Also from membership fees received from members of Ontario Sheep Breeders' Association who are not members of Canadian Sheep Breeders' Association.

MEETINGS.

5. The business year of the Association shall commence on the first day of January of each year, and shall end on the 31st day of December following. The annual meeting shall be held at such time and place as the Executive may decide.

6. A special meeting of the Association may be called by the Executive. Notice of each annual and special meeting shall be mailed by the Secretary at least ten days prior to the date of meeting, to each member whose name and address is known to the Secretary. In the case of a special meeting, there shall be given at the same time, a statement as to the purpose for which the meeting is called.

7. Representatives to Exhibition Associations, when such are to be appointed, shall be elected at the annual meeting. These representatives shall carry out such instructions as may be given them by this Association.

8. No person, other than a member of this Association shall be entitled to vote or take part at any meeting of this Association.

OFFICERS.

9. The following Directors shall be appointed at the annual meeting of the Association, one for each of the following breeds:

Cotswolds.
Leicesters.
Lincolns.
Oxfords.

Shropshires.
Southdowns.
Hampshires.
Suffolks.
Dorsets.

and two General Directors.

10. The President and Vice-President shall be appointed by the Directors from among themselves at a meeting to be held as soon as convenient after the annual meeting. At this meeting an auditor or auditors shall be appointed for the current year.

11. The Secretary-Treasurer shall be appointed from among the Directors or otherwise, by the Directors of the Association, and shall hold office during the pleasure of the Board of Directors.

12. An Executive Committee shall be appointed to consist of the President, the Vice-President, the Secretary and two other Directors, to be elected at the first meeting of the Board following the annual meeting. The Directors may also elect such other committees as may be necessary.

13. Five members shall be a quorum at any meeting of the Directors, and three members shall be a quorum at any meeting of the Executive.

14. The Executive shall meet at the call of the President, or in his absence, of the Vice-President, on at least three days' notice.

DUTIES OF OFFICERS.

15. (a) The duties of the Executive shall be to prepare recommendations for Board Meetings, supervise finance, let contracts and arrange for printing and advertising, make necessary arrangements for holding exhibitions, and deal with such questions as have not been decided by the Board and carry out all matters referred to it by the Board. The President shall be Chairman of this Committee, and the Vice-President shall be Vice-Chairman. If necessary, the Executive may refer matters of detail to a smaller committee.

(b) The President shall preside at all meetings of the Board of Directors, and of the Executive, when present, and shall perform the duties usually appertaining to such office, and in his absence such duties shall be performed by the Vice-President, or in his absence by a Chairman to be chosen at the meeting.

(c) The Secretary shall attend and be present at the meetings of the Association, Directors, Executive and Committees, and keep a true record of the transactions and proceedings at all such meetings, in a book or books, which shall be open to the inspection of the members thereof at all reasonable times. He shall also as such Secretary conduct all correspondence, issue all press and other reports and notices and prepare for publication the annual report.

(d) (1) The Treasurer shall receive and have custody of moneys and valuable papers of the Association. He shall cause to be entered in books kept for that purpose a correct statement of all moneys received and disbursed on account of the Association, which books shall be open at all reasonable times to the inspection of the members thereof. The Treasurer shall prepare for the annual meeting a complete statement of the receipts and disbursements in which shall be shown the expenses of management, and shall perform such other duties in connection with the finances as may be required of him by the Constitution and the Rules and Regulations, and by the lawful orders and resolutions of the Board.

(2) All funds shall be deposited to the credit of the Ontario Sheep Breeders' Association, in a chartered bank of the Dominion of Canada, to be selected by the Executive, and all payments shall be made by cheque drawn on such bank by the Treasurer and countersigned by the President. In the absence of either of these officials, cheques may be signed by persons duly authorized by the Executive.

(3) Accounts may be paid when passed by the President and Secretary, or in the absence of either of them by such person or persons as the Executive may authorize, but all accounts must be submitted to the Executive for inspection at the first meeting following.

(4) Accounts for travelling expenses must be given in detail and all payments of \$2.00 and upwards must be accompanied by vouchers.

(5) Pay sheets of employees shall be certified to by the Superintendent, Assistant Superintendent, or the official in charge.

(e) The auditor or auditors shall annually examine and report upon all accounts affecting the Association, or relating to any matters under its control or within its jurisdiction, for the year ending on the thirty-first of December next preceding each annual meeting, and shall verify the detailed statement to be annually prepared by the Treasurer in such form as the Directors may require, and report in duplicate upon all the accounts audited by him and make a special report of any expenditures made contrary to the Constitution, Rules and Regulations, and generally do and perform all acts devolving upon auditors or which may be required by the Directors.

16. The actual and necessary travelling expenses may be paid of members of the Board of Directors attending Board Meetings, and of members of duly appointed committees when performing the duties in connection with their office.

17. When practicable, the business of the Board or of any Committee may be conducted by correspondence.

18. Any part of this Constitution or any By-laws of the Association may, subject to the Act of Incorporation, be amended or changed at any annual or properly called special meeting, by two-thirds vote of the members present at each meeting.

(a) Provided that any member desiring to introduce any addition or amendment to the Constitution or By-laws shall so notify the Secretary in writing at least fifteen days prior to the date of any meeting of the Association, and shall enclose with such notice a copy of proposed addition or amendment which shall then be sent by the Secretary to each known member of the Association ten days before the date of holding meeting.

19. The order of business at all meetings of this Association shall be:—

1. Reading Minutes.
 2. Reports of Officers.
 3. Reports of Committees.
 4. Election of Officers.
 5. New Business.
 6. Adjournment.
-

Ontario Horse Breeders' Association

The annual meeting of the Association was held in Toronto, February 7th, 1918.

OFFICERS.

<i>President</i>	WM. SMITH, Columbus.
<i>Vice-President</i>	JOHN A. BOAG, Queensville.
<i>Executive Committee</i>	GEO. PEPPER, Toronto.
	WM. GRAHAM, Claremont.
	JOHN GARDHOUSE, Weston.
<i>Secretary-Treasurer</i>	R. W. WADE, Parliament Bldgs., Toronto.

DIRECTORS.

Canadian Clydesdale Association.

WM. SMITH, Columbus.	F. RICHARDSON, Columbus.
JOHN A. BOAG, Queensville.	T. H. HASSARD, Markham.
JOHN MOORE, Queensville.	WM. MOSSIP, St. Mary's.
PETER CHRISTIE, Manchester.	T. D. ELLIOTT, Bolton.
WM. GRAHAM, Claremont.	J. GOULD, Uxbridge.
JAMES TORRANCE, Markham.	JAS. HENDERSON, Thamesford.
W. F. BATTY, Brooklin.	W. SCOTT, Sutton West.

Canadian Shire Association.

JOHN GARDHOUSE, Weston.	C. E. PORTER, Appleby.
-------------------------	------------------------

Canadian Percheron Association.

E. C. H. TISDALE, Beaverton.	W. G. HILL, Queensville.
------------------------------	--------------------------

Canadian Hackney Association.

J. M. GARDHOUSE, Weston.	H. M. ROBINSON, Toronto.
--------------------------	--------------------------

Canadian Standard-Bred Association.

COL. W. J. COWAN, Cannington.	GEO. PEPPER, Toronto.
-------------------------------	-----------------------

Canadian Thoroughbred Association.

E. B. CLANCY, Guelph.	G. B. ELLIOTT, Newtonbrook.
-----------------------	-----------------------------

Canadian Pony Society.

JOHN MILLER, JR., Ashburn.	JAMES CREECH, Lambton.
----------------------------	------------------------

REPRESENTATIVES TO FAIR BOARDS.

Canadian National Exhibition: WM. SMITH, Columbus.

Western Fair, London: WM. MOSSIP, St. Mary's; GEO. CHARLTON, Duncrief.

Central Canada Exhibition: ADAM SCHARFE, Cumming's Bridge; WM. SMITH, Columbus.

Ottawa Winter Fair: WM. SMITH, Columbus; ADAM SCHARFE, Cummings Bridge; FRED RICHARDSON, Columbus; WALTER SCOTT, Sutton West.

Ontario Provincial Winter Fair: JOHN A. BOAG, Queensville; T. H. HASSARD, Markham; H. M. ROBINSON, Toronto; PETER CHRISTIE, Manchester.

FINANCIAL STATEMENT

Of the Ontario Horse Breeders' Association, for the year ending December 31st, 1917.

Receipts.

Cash on hand as per last report	\$85 51
Government Grant	500 00
Memberships:	
Thoroughbred Horse Society, 1916-1917	30 00
Canadian Percheron Horse Breeders' Association, 1916	15 00
Canadian Standard-Bred Horse Society	15 00
Total	\$645 51

Expenditures.

Directors' Expenses	\$168 60
Auditor	3 00
Printing Notices for Annual Meeting	4 00
Reporting at Annual Meeting	12 00
Refund of Overpaid Fees to Ontario Horse, 1917	30 00
Grant, Open Air Horse Parade	25 00
Miscellaneous	5 30
Cash on hand	397 61
Total	\$645 51

(Sgd.) WILLIAM SMITH, *President.*
R. W. WADE, *Treasurer.*

PRESIDENT'S ADDRESS.

WM. SMITH, COLUMBUS.

GENTLEMEN,—A great many of our members have become satisfied with the work accomplished so far this week, and have returned to their homes. It is, however, gratifying to those who take an interest in this perhaps lesser organization, that so many have attended this meeting to consider the matters which shall come before this gathering.

You will remember that last year a number of Associations refused the payment of certain sums which they had been in the habit of paying to the Ontario Horse Breeders' Association, and I think they were on the right line. I can agree with them as far as that was concerned, but if we are to continue as an organization, the money will have to be received from somewhere else. You appointed a Committee to interview the new Minister of Agriculture, Sir William Hearst and I think it was on the Saturday after the last annual meeting that we obtained the interview. We pointed out some of the difficulties facing us and we were given a most sympathetic hearing. If it meant anything at all—it meant money from the Government. We indicated one or two things we could do and one was, that whilst the exhibitor had a right to receive all he could get from the different Associations in the way of prizes, yet the man who had actually caused the outcome of that animal deserved some credit for the result. The exhibitor brought that animal into the show ring without any idea of the cause and what brought it about—that is, the fitting of that animal. We pointed out that was tried out at Guelph and would have been tried at the Ottawa Show had it gone on.

I need not remind you that we had an election last year and to me that election was more important than the Guelph Show and I had not the pleasure of being at the Show but I understand what a splendid show it was. In looking

over the list of prizes in connection with that Show I came to the conclusion that we made no mistake in asking for a certain amount of money from the Minister of Agriculture. That subject will be for your consideration to-night.

Now the next matter which came up for our attention was with respect to the Western Live Stock Union formed by our Western friends. I have heard a good deal of it here in the East as to what work they were doing. It was forced upon our minds that our Western friends were aggressive and were making themselves felt, as they had a right to do and which was their privilege. It would be well if we had such an organization as that in the East as well as in the West. I represented the Ontario Horse Breeders' Association last spring when such an Eastern organization was formed and I will now refer to one or two things which have already been dealt with at the different meetings of this week. I am bound to confess, that while it has not accomplished a great deal, it seems to be in the right direction. I pointed out some of the credit which I thought belonged to that work, in speaking to the Clydesdale Association and the Hereford men. I pointed out that the Railway Commission, whether authorized or not, proposed to increase the freight and passenger rates, and that meant \$10,000,000 a year to the live stock men. Now, it was up to me, if up to anybody, as Chairman of the Eastern Live Stock Association and particularly in conjunction with the Chairmanship of the Live Stock Record Committee, to take action in this matter. I was a little careful of myself because I knew if I took no action and nothing was done, I would be held responsible if I had not tried to save the live stock men of Canada from paying \$40,000,000. It seemed to me that the Record Committee should take the initiative and in discussion with the members of that Committee the decision was made that we would bear our portion of the expense—and we were in a position to do so.

I asked Mr. Brant to call the members together here and at Ottawa and I suggested that we get as many representatives from the different Associations as possible and have the matter discussed from all angles and from all sides. There it is, and I don't care how public this may be made—that no one thought that the Canadian Pacific Railway required an increase in rates—they didn't then and do not to-day. But the difficulty was with the Grand Trunk and the Canadian Northern as well as the Grand Trunk Pacific. The Government of Canada had practically taken over the Canadian Northern and practically owned the Grand Trunk Pacific and if I said to you that the old Grand Trunk was perhaps the hardest up of all, you might not believe it. Here was one railroad that didn't need any help and was going to get help out of the increased traffic and passenger rates.

A Committee was appointed and I particularly asked them to come to Ottawa and hear the representations made by our Western friends. They met a Special Committee of the Government. I am bound to say I never heard a better presentation of any case than was made by the Western Live Stock Association before that Special Committee of the Government. It was a legal presentation more than anything else—ours was from a different standpoint. Next day we met Dr. Reid, the Minister of Railways and we had engaged Mr. Peter White to present our case.

I got a little more credit to-day for that than I think I deserved but a public man wants all the credit he can get in a general way. Whether we can go any farther than what we have accomplished, I do not know. Remember this, that the man to-day occupying a high and exalted position who thinks he is lying on a bed of roses, makes a great mistake. The transportation question is

to-day one of the most important that Parliament has to face. Coming from Oakville last Saturday I noticed what might almost be a trainload of coal on a siding. Cities and towns to the East and West were demanding that coal but it could not be transported. The Dominion Government has actually had to buy engines and loan them to the Grand Trunk Railway. I dare say you hardly think that is possible. The Canadian Northern also have had some loaned to them—of course that will be financed in a few weeks.

That being the case, it shows what the transportation problem is and that will emphasize what has been done in a quiet way during the last few weeks by calling the live stock men together.

I would like to point out that a single individual cannot accomplish a great deal with a railway or a railway commission but if you can get the farmers and breeders of Canada united from the Pacific Ocean to the Atlantic in one common cause and having one common object in view, they have to be listened to. That is one of the objects we have in forming the Eastern Live Stock Association and while our Western friends got ahead of us and we were bound to a great extent to copy their rules and regulations, we are bound to say we can accomplish a good deal if we are united.

I cannot impress upon you too strongly how much we need your influence and your guidance in every possible way. I don't think it would be going out of the way to say that there was one man in Canada who understood the railway situation better than another and that man is in the employ of the Agricultural Department of the Dominion and is Mr. George Pepper. I have not always agreed with Mr. Pepper and may not agree with him in the future but the case that was argued before the Railway Commission and also before the Minister of Railways was exactly the case as worked out by Mr. Pepper. He is either right or he is wrong and to be fair, no one has been able to point out that he was wrong. That being the case, it is a fair presumption to say, that to all intents and purposes he was right. He has taken his time working in the public interest and public service and he has worked out the indisputable fact that the Canadian Pacific Railway does not need any help and if the Canadian Northern and Grand Trunk have to be helped in a general way, they have to take it out of the breeders and farmers of Canada—and the Canadian Pacific Railway. Now, that is one of the most serious problems we are facing to-day. I do not know what the Government will do with it but it is worth watching. I will tell you what I think I would do, I would allow the Canadian Pacific Railway to continue its existence as it is and I would take control of the other railways so they would become a live competitor to the C. P. R. and would control its tolls to a great extent and would place that railroad on even a better basis than it is to-day. Wait till the snow goes away and the frost has subsided, there is not a single and solitary one of these railroads, with the exception of the C. P. R., that is going to be scarcely safe to travel on. I make this statement after due consideration.

For nearly four years we have been face to face with one of the most terrible struggles that the world has ever seen. Many changes have taken place since August, 1914. The farmers of Canada were perhaps never more prosperous than now and perhaps in the days to come they can never be as prosperous and their best judgment will be required in their plans for the future. As regards cattle, sheep and swine the future is perhaps brighter as far as the farmer is concerned than it has been in the past but in connection with the Ontario Horse Breeders' Association you have a right to ask—what about the horse trade? I don't think I am in a better position to answer that question than you are. You will say

that the motor is playing its part and is going to displace the breeding of horses on the farms of Ontario. I say that the heavy motor is not going to play a very important part in the near future in the work on the farm, either in Ontario or in the Western provinces. It is too cumbersome. The ordinary man can run it until it gets out of order and then he doesn't know what to do with it. He may be miles away from any place where he can have it repaired and it will be costly. There will be a lighter motor truck which may play a little part in the future in replacing the horse on the farm but I am bound to confess that the farm horse, and the Clydesdales in particular, will for years to come, in my belief, play an important part in the work upon the Ontario farm and upon the plains in the North-west. I cannot help thinking that the farm in the West would be far better off at the end of five years if they work the farms with horses rather than with motors.

Then you will perhaps ask—what about help. That is a difficulty we are faced with on every hand. But there is this to be got over, that the ordinary farm help, in my opinion, will be mightily little good in running a motor truck upon the farm. When a motor goes wrong why all the farm hands have to leave their work and look at the truck and after they look it all over and have spent a good portion of the forenoon, they know no more about it than when they started. That means the whole work on the farm is at a standstill.

Thousands of horses will be required in the West and why can't they use their mares for breeding and in that way help production. I may have made remarks that you will not agree with, if I have said something that is worth while, you can act upon it in the years to come. When our boys who are spared, return from the plains of Flanders and of France and we have to try and look out for their future, I believe that the horse industry will still have to be considered. The horse will play a most important part in farm life and in the settlement on the land of these splendid fellows who have been willing to risk everything they had—the best they had, fighting for you and for me. (Applause.)

CONSTITUTION OF THE ONTARIO HORSE BREEDERS' ASSOCIATION.

1. This Association, incorporated under "The Agricultural Associations Act," shall be known as the Ontario Horse Breeders' Association.

2. The object of this Association shall be to encourage a general and constant improvement in horse breeding and a better organization of the interests of the breeders of horses throughout the Province:

(1) By co-operating with the Department of Agriculture.

(2) By holding meetings to discuss matters of importance to the horse industry of the Province.

(3) By co-operating with exhibition and live stock Associations and Societies to advance the interest of the live stock industry generally, with special reference to the interests of the horse industry.

(4) By holding or assisting to hold competitive exhibitions and educational meetings.

MEMBERSHIP.

3. The membership shall consist of the members of the following Associations residing in the Province of Ontario, who have recorded at least one pedigree as breeder or importer during the preceding calendar year:

The Canadian Clydesdale Association.

The Canadian Percheron Association.

The Canadian Shire Association.

The Canadian Hackney Society.

The Canadian Thoroughbred Association.

The Canadian Standard Bred Trotting Association.

The Canadian Pony Society.

And any other Association which may be approved by this Association in accordance with Article 17, if said association has been formed for the object of recording pure-bred horses, and is incorporated under the Dominion Act respecting Live Stock Record Associations, and whose admission has been approved of by the Minister of Agriculture for the Province of Ontario.

(a) Provided, however, that this shall not prevent the privilege under this article being withdrawn from any of the Associations above named or hereafter to be admitted, if decided by this Association.

(b) Provided further that any of the Associations specially named or hereafter admitted, which shall, during any calendar year cease to be incorporated as a Live Stock Record Association under the Dominion Act respecting Live Stock Record Associations, shall forfeit all privileges and rights under any article of this Association.

(c) Nothing in this Constitution shall prevent the expulsion of any member found guilty of dishonorable practices, and any member found guilty of such misdemeanor may be expelled at any annual meeting of this Association.

4. The business year of the Association shall commence on the first day of January of each year, and shall end on the 31st day of December following. The annual meeting shall be held at such time and place as the Executive may decide.

5. A special meeting of the Association may be called by the Executive. Notice of each annual and special meeting shall be mailed by the Secretary at least ten days prior to the date of meeting, to each member whose name and address is known to the Secretary. In the case of a special meeting, there shall be given at the same time, a statement as to the purpose for which the meeting is called.

6. Representatives to Exhibition Associations when such are to be appointed, shall be elected at the annual meeting. These representatives shall carry out such instructions as may be given them by this Association.

7. No person other than a member of this Association, shall be entitled to vote or take part at any meeting of this Association.

OFFICERS.

8. The Directors shall be appointed at the annual meeting of this Association. Each approved Association shall be represented on the Board of Directors by two Directors elected from among the members from said Association, when the membership from said Association is 100 members or less, and by one additional Director elected from among the members from said Association for each additional 50 members or fraction of 50 members from said Association. The Director of the Live Stock Branch shall be an ex-officio member of the Association and a member of the Board of Directors.

9. The President and Vice-President shall be appointed by the Directors from among themselves at a meeting to be held as soon as convenient after the annual meeting. At this meeting an auditor, or auditors, shall be appointed for the current year.

10. The Secretary-Treasurer shall be appointed from among the Directors or otherwise, by the Directors of the Association, and shall hold office during the pleasure of the Board of Directors.

11. An Executive Committee shall be appointed to consist of the President, the Vice-President, the Secretary and three other Directors, to be elected at the first meeting of the Board following the annual meeting. The Directors may also elect such other committees as may be necessary.

12. Seven members shall be a quorum at any meeting of the Directors and three members shall be a quorum at any meeting of the Executive.

13. The Executive shall meet at the call of the President, or in his absence, of the Vice-President, on at least three days' notice.

DUTIES OF OFFICERS.

14. (a) The duties of the Executive shall be to prepare recommendations for Board Meetings, supervise finance, let contracts and arrange for printing and advertising, make necessary arrangements for holding exhibitions, and deal with such questions as have not been decided by the Board, and carry out all matters referred to it by the Board. The President shall be Chairman of this Committee, and the Vice-President shall be Vice-Chairman. If necessary, the Executive may refer matters of detail to a smaller committee.

(b) The President shall preside at all meetings of the Board of Directors, and of the Executive, when present and shall perform the duties usually appertaining to such office, and in his absence such duties shall be performed by the Vice-President, or in his absence by a Chairman to be chosen at the meeting.

(c) (1) The Secretary shall attend and be present at all meetings of the Association Directors, Executive and Committees, and keep a true record of the transactions and proceedings at all such meetings, in a book or books, which shall be open to the inspection of the members thereof at all reasonable times. He shall also as such Secretary,

conduct all correspondence, issue all press and other reports and notices, and prepare for publication the annual report.

(2) He shall, under the direction of the Executive, carry out all arrangements for holding exhibitions, see that the buildings are prepared and ready for use at the proper time, and have all the necessary supplies and equipment ready for the exhibition. He shall, under the direction of the Executive and various Committees, attend to the arrangements of each department, and decide all matters such as the President, or Vice-President, acting in his absence, may not consider of sufficient importance to warrant him in calling a meeting of the Executive to determine. He shall prepare a programme for all exhibitions which the Board may from time to time determine to hold and report as to the staff of assistants necessary for such exhibition, and in general perform all such duties as usually devolve on such an officer under the direction of or subject to the approval of the Executive, and further do and perform all such acts, matters and things as would be required of him by any by-law or resolution or order of the Board of Directors in the office of Manager.

(d) (1) The Treasurer shall receive and have custody of moneys and valuable papers of the Association. He shall cause to be entered in books kept for that purpose a correct statement of all moneys received and disbursed on account of the Association, which books shall be open at all reasonable times to the inspection of the members thereof. The Treasurer shall prepare for the annual meeting a complete statement of the receipts and disbursements in which shall be shown the expenses of management, and shall perform such other duties in connection with the finances as may be required of him by the Constitution and the Rules and Regulations, and by lawful orders and resolutions of the Board.

(2) All funds shall be deposited to the credit of the Ontario Horse Breeders' Association in a chartered bank of the Dominion of Canada, to be selected by the Executive and all payments shall be made by cheque drawn on such bank by the Treasurer and countersigned by the President. In the absence of either of these officials, cheques may be signed by persons duly authorized by the Executive.

(3) Accounts may be paid when passed by the President and Secretary, or in the absence of either of them by such person or persons as the Executive may authorize, but all accounts must be submitted to the Executive for inspection at the first meeting following.

(4) Accounts for travelling expenses must be given in detail and all payments of \$2.00 and upwards must be accompanied by vouchers.

(5) Pay sheets of employees shall be certified to by the Superintendent, Assistant Superintendent, or the official in charge.

(e) The auditor or auditors shall annually examine and report upon all accounts affecting the Association, or relating to any matters under its control or within its jurisdiction, for the year ending on the thirty-first of December next preceding each annual meeting, and shall verify the detailed statement to be annually prepared by the Treasurer in such form as the Directors may require, and report in duplicate upon all the accounts audited by him and make a special report of any expenditures made contrary to the Constitution, Rules and Regulations, and generally do and perform all acts devolving upon auditors or which may be required by the Directors.

15. The actual and necessary travelling expenses may be paid of members of the Board of Directors attending Board Meetings, and of the members of duly appointed Committees when performing the duties in connection with their office.

16. When practicable, the business of the Board or of any Committee may be conducted by correspondence.

17. Any part of this Constitution or any By-laws of the Association may, subject to the Act of Incorporation, be amended or changed at any annual or properly called special meeting, by two-thirds vote of the members present at each meeting,—

(a) Provided that any member desiring to introduce any addition or amendment to the Constitution or by-laws shall so notify the Secretary in writing at least fifteen days prior to the date of any meeting of the Association and shall enclose with such notice a copy of proposed addition or amendment. A copy of the proposed addition or amendment shall then be sent by the Secretary to each known member of the Association, ten days before the date of holding meeting.

18. The order of business at all meetings of this Association shall be:

1. Reading Minutes.
2. Reports of Officers.
3. Reports of Committees.
4. Election of Officers.
5. New Business.
6. Adjournment.

Dominion Cattle Breeders' Association

The annual meeting of this Association was held in Toronto on February 8th, 1918.

OFFICERS.

President or General Director..... JOHN GARDHOUSE, Weston.
Representative from O.A.C...... PROF. WADE TOOLE, Guelph.
Secretary-Treasurer R. W. WADE, Parliament Buildings.

REPRESENTATIVES TO FAIR BOARDS.

Canadian National Exhibition: JOHN GARDHOUSE, Weston.
Western Fair (London): W. W. BALLANTYNE, Stratford; HARRY SMITH, Exeter.
Central Canada Exhibition: JOHN GARDHOUSE, Weston; J. J. HODGINS, Carp.
Ontario Provincial Winter Fair: JOHN GARDHOUSE, Weston; W. A. DRYDEN, Brooklin;
W. W. BALLANTYNE, Stratford; R. S. STEVENSON, Ancaster.
Ottawa Winter Fair: J. H. GRISDALE, Ottawa; W. F. STEPHEN, Huntingdon, Que.;
W. M. SMITH, Columbus.

N.B.—Dominion Cattle Breeders' Association is now known as Ontario Cattle Breeders' Association.

FINANCIAL STATEMENT

Of the Dominion Cattle Breeders' Association, for the year ending December 31st, 1917.

Receipts.

Cash on hand as per last report \$114 36

Expenditures.

W. R. Phillips, Printing Notices	\$1 50
Auditor	2 00
Carls-Rite Hotel, Room for Meeting	5 00
Floral Wreath for the late John Bright	5 00
Delegate to Ottawa	27 15
Cash on hand	73 71

Total \$114 36

Examined and found correct,
19th day of January, 1918.

G. DE W. GREENE,
Auditor.

(Sgd.) WILLIAM SMITH,
President.
(Sgd.) R. W. WADE,
Treasurer.

CONSTITUTION OF THE ONTARIO CATTLE BREEDERS' ASSOCIATION.

1. This Association, incorporated under "The Agricultural Associations Act," shall be known as "The Ontario Cattle Breeders' Association."

2. The object of this Association shall be to encourage a general and constant improvement in cattle breeding, and a better organization of the interests of the breeders of cattle, throughout the Province.

(1) By co-operating with the Department of Agriculture.

(2) By holding meetings to discuss matters of importance to the cattle industry of the Province.

(3) By co-operating with Exhibition and Live Stock Associations and Societies to advance the interests of live stock industry generally with special reference to the interests of the cattle industry.

(4) By holding or assisting to hold competitive exhibitions and educational meetings.

MEMBERSHIP.

3. The membership shall consist of those members of the various record cattle associations, who reside in the Province of Ontario, and any other resident of the Province, who may be admitted to membership.

MEETINGS.

4. The business year of the Association shall commence on the first day of January of each year, and shall end on the 31st day of December following. The annual meeting shall be held at such time and place as the Executive may decide.

5. A special meeting of the Association may be called by the Executive. Notice of each annual and special meeting shall be mailed by the Secretary at least ten days prior to the date of meeting, to each member at his last known address. In case of a special meeting, there shall be given at the same time, a statement as to the purpose for which the meeting is called.

6. Representatives to Exhibition Associations, when such are to be appointed, shall be elected at the annual meeting. These representatives shall carry out such instructions as may be given them by this Association.

7. No person, other than a member of this Association, shall be entitled to vote or take part at any meeting of this Association.

OFFICERS.

8. The Board of Directors shall be selected at the annual meeting, and the number of Directors to which each breed is entitled shall be arrived at by the following method:

(a) Any breed having under 250 members, resident in the Province of Ontario, shall have one Director; between 251 and 500 members, two Directors; between 501 and 750 members, three Directors; between 751 and 1,000 members, four Directors; between 1,001 and 1,250 members, five Directors, etc.; with an additional Director for every additional 250 members.

9. The President and Vice-President shall be appointed by the Directors from among themselves, at a meeting to be held as soon as convenient after the annual meeting. An auditor or auditors shall be appointed by resolution at a general meeting of the Association.

10. The Secretary-Treasurer shall be appointed from among the Directors or otherwise, by the Directors of the Association, and shall hold office during the pleasure of the Board of Directors.

11. An Executive Committee shall be appointed to consist of the President, the Vice-President, the Secretary, and two other Directors, to be elected at the first meeting of the Board following the annual meeting. The Directors may also elect such other committees as may be necessary.

12. Five members shall be a quorum at any meeting of the Directors, and three members shall be a quorum at any meeting of the Executive.

13. The Executive shall meet at the call of the President, or in his absence, of the Vice-President, on at least three days' notice.

DUTIES OF OFFICERS.

14. (a) The duties of the Executive shall be to prepare recommendations for Board Meetings, supervise finance, let contracts and arrange for printing and advertising, make necessary arrangements for holding exhibitions and deal with such questions as have not been decided by the Board, and carry out all matters referred to it by the Board. The President shall be Chairman of this Committee and the Vice-President shall be Vice-Chairman. If necessary, the Executive may refer matters of detail to a smaller committee.

(b) The President shall preside at all meetings of the Board of Directors, and of the Executive, when present, and shall perform the duties usually appertaining to such office, and in his absence such duties shall be performed by the Vice-President, or in his absence by a Chairman to be chosen at the meeting.

(c) The Secretary shall attend and be present at the meetings of the Association, Directors, Executive, and Committees, and keep a true record of the transactions and proceedings at all such meetings, in a book or books, which shall be open to the inspection of the members thereof at all reasonable times. He shall also, as such Secretary conduct all correspondence, issue all press and other reports and notices and prepare for publication the annual report.

(d) (1) The Treasurer shall receive and have custody of moneys and valuable papers of the Association. He shall cause to be entered in books kept for that purpose a correct statement of all moneys received and disbursed on account of the Association,

which books shall be open at all reasonable times to the inspection of the members thereof. The Treasurer shall prepare for the annual meeting a complete statement of the receipts and disbursements in which shall be shown the expenses of management, and shall perform such other duties in connection with the finances as may be required of him by the Constitution and the Rules and Regulations and by the lawful orders and resolutions of the Board.

(2) All funds shall be deposited to the credit of the Ontario Cattle Breeders' Association, in a chartered bank of the Dominion of Canada, to be selected by the Executive, and all payments shall be made by cheques drawn on such bank by the Treasurer and countersigned by the President. In the absence of either of these officials, cheques may be signed by persons duly authorized by the Executive.

(3) Accounts may be paid when passed by the President and Secretary, or in the absence of either of them, by such person or persons as the Executive may authorize, but all accounts must be submitted to the Executive for inspection at the first meeting following.

(c) The auditor or auditors shall annually examine and report upon all accounts affecting the Association or relating to any matters under its control, or within its jurisdiction, for the year ending on the thirty-first of December next preceding each annual meeting, and shall verify the detailed statement to be annually prepared by the Treasurer in such form as the Directors may require, and report in duplicate upon all accounts audited by him and make a special report of any expenditures made contrary to the Constitution, Rules and Regulations, and generally do and perform all acts devolving upon auditors, or which may be required by the Directors.

15. Expenses may be paid members of the Board of Directors attending Board Meetings, and of members of duly appointed committees when performing the duties in connection with their office. Expenses to be railway fare and four dollars (\$4.00) per day.

16. When practicable, the business of the Board or of any Committee may be conducted by correspondence.

17. Any part of this Constitution or any By-laws of the Association may, subject to the Act of Incorporation, be amended or changed at any annual or properly called special meeting, by a two-thirds vote of the members present at such meeting.

(a) Provided that any members desiring to introduce any addition or amendment to the Constitution or By-laws, shall so notify the Secretary in writing at least fifteen days prior to the date of any meeting of the Association, and shall enclose with such notice a copy of proposed addition or amendment. A copy of the proposed addition or amendment shall be sent by the Secretary to each known member of the Association ten days before the date of holding meeting.

18. The order of business at all meetings of this Association shall be:—

1. Reading Minutes.
2. Reports of Officers.
3. Reports of Committees.
4. Unfinished Business.
5. New Business.
6. Election of Officers.
7. Adjournment.

Eastern Canada Live Stock Union

The annual meeting of this Association was held in Toronto, February 8th, 1918.

OFFICERS.

President WM. SMITH, Columbus, Ont.
First Vice-President JOHN GARDHOUSE, Weston, Ont.
Second Vice-President R. R. NESS, Howick, Que.
Third Vice-President W. R. REEK, Fredericton, N.B.
Secretary-Treasurer R. W. WADE, Parliament Buildings, Toronto.

DIRECTORS.

Horses GEO. PEPPER, Toronto, Ont.
Cattle W. A. DRYDEN, Brooklin, Ont.
Sheep J. D. BRIEN, Ridgetown, Ont.
Swine J. E. BRETHER, Burford, Ont.
Poultry J. H. SAUNDERS, London, Ont.

CONSTITUTION OF THE EASTERN CANADA LIVE STOCK UNION.

NAME.

1. The Eastern Canada Live Stock Union.

OBJECTS.

2. To encourage and develop all branches of the live stock industry; (a) by improving markets and marketing conditions; (b) by the encouragement of inter-provincial trade; (c) by improving transportation conditions; (d) by co-operating with the Provincial and Federal Governments to effect legislation which will promote the welfare of the live stock industry; (e) by assisting wherever possible in improving live stock conditions generally.

MEMBERSHIP.

3. The Union shall consist of the following associations which have paid the current year's membership fees of the Union.

(a) One Association from each Province or group of Provinces east of the Great Lakes, representing horses, cattle, sheep and swine.

(b) Such other Associations or Organizations as may be admitted to membership.

4. All members in good standing of the various Organizations composing the Union will have the privilege of attending the Annual Meeting. Only official delegates from these Associations shall be entitled to vote.

5. The Directors of the Union shall be as follows:—

(a) One duly appointed representative of each affiliated live stock association or other organization admitted to membership.

(b) The Ministers of Agriculture, the Deputy Ministers of Agriculture and the Live Stock Commissioners for the Provinces east of the Great Lakes.

(c) Honorary Directors, the Dominion Minister of Agriculture, the Dominion Live Stock Commissioner.

6. Vacancies on the Board of Directors shall be filled by the Board.

OFFICERS AND DUTIES.

7. At the Annual Meeting, the Board of Directors shall elect by ballot, from among themselves, the following Officers:—

(a) A President.

(b) Three Vice-Presidents.

(c) A Secretary-Treasurer.

(d) Five Directors respectively representing, Horses, Cattle, Sheep, Swine and Poultry.

8. The President, Vice-Presidents, the Secretary-Treasurer and the aforesaid five Directors, shall constitute the Executive Committee, who shall attend to the general work of the Union and to such business as may be referred to them by the Directors.

9. Vacancies on the Executive Committee shall be filled by the Board of Directors.

10. The President, Vice-Presidents and the Secretary-Treasurer shall perform the usual duties of such Officers and shall hold office until the next Annual Meeting.

11. The Secretary-Treasurer shall receive the funds of the Union and deposit same in a chartered bank to the credit of the Eastern Canada Live Stock Union. All cheques drawn against the said account shall be signed by the Secretary-Treasurer and countersigned by the President or a Vice-President.

12. The Executive Committee may require the Secretary-Treasurer to give satisfactory bond in such sums as may be fixed by the Union.

13. The President or a Vice-President is authorized to countersign and the Secretary-Treasurer to sign cheques in payment of accounts which are correct and which they consider are justly chargeable to the Union and are not contrary to the Constitution or any Resolution passed regarding same.

MEETINGS AND QUORUM.

14. There shall be an Annual Meeting of the Board of Directors to be held at such time and place as may be decided upon by the Executive Committee.

15. A Special Meeting of the Directors may be convened at the call of the President.

16. Seven shall be a quorum at a Directors' Meeting.

17. The Executive shall meet at the call of the President who shall set the date and place of meeting.

18. The Executive may act on any matter within their power by correspondence where each gives his consent thereto and a minute of such action shall be entered in the Minute Book.

19. Three shall be a quorum at an Executive Meeting.

20. The business at the Annual Meeting shall be:—

(a) To receive financial and other reports.

(b) To deal with any business which may be properly brought before the Meeting.

(c) Election of Officers.

21. When practicable, Directors shall forward to the Secretary of the Union at least thirty days before the date of the Annual Meeting, a copy of any Resolution proposed to be submitted at the Annual Meeting. The Secretary shall forthwith mail a copy to each of the Directors, who shall endeavor previous to the Annual Meeting, to get decisions regarding same from the associations they represent.

22. In the event of any Resolution, otherwise approved by the Union, being considered by any Directors as contentious, and not likely to be concurred in by the Association which he represents, said Resolution may be tentatively passed but no action shall be taken thereon until the dissenting Directors shall have had an opportunity of laying it before his Association. In such case the Director shall communicate the decision of his Association to the Secretary of the Union at the earliest possible moment, it being understood that if such report is not received by the Secretary within thirty days of the date of the meeting of the Union, the Resolution shall be considered as having been duly approved and passed. In the event of the Association failing to approve such Resolution, the Executive Committee shall decide as to what action shall be undertaken under the circumstances.

DUES.

23. The annual dues for each Association or Organization shall be \$25.00.

23a. Record Associations admitted to both Eastern and Western Unions for one fee of \$25.00.

24. The fiscal year shall be the calendar year.

EXPENSES.

25. The expenses of Directors attending the Annual Meeting shall be paid by the organization they represent.

26. The expenses of Directors or other Officers of the Union attending all other meetings or acting under instructions as duly accredited representatives of the Union, shall be paid by the Union.

AUDITOR.

27. The accounts of the Union shall be audited annually or when required by the official auditor appointed by the Directors, and a Financial Statement shall be presented by the Executive Committee at each Annual Meeting.

BY-LAWS.

28. The Executive Committee shall frame such by-laws and regulations for its own government and that of the Union as are in its judgment in the best interest of the Union and not inconsistent with the Constitution.

AMENDMENTS TO CONSTITUTION.

29. The Constitution and By-laws may be amended at an Annual Meeting by a two-thirds majority of the Directors present.

ADDRESS.

DR. RUTHERFORD.

It is, as you can readily believe, a source of great satisfaction to me, as it is to the live stock men of the Western Provinces, to realize that the formation of an Eastern Canada Live Stock Union has been made with a good start and very satisfactory progress. The Western Canada Live Stock Union grew from a very small and unexpected beginning. A number of gentlemen in the West, as you know, were ill-satisfied with the matter of representation on the various directorates of the record associations, the majority of whose members resided in the good old foundation Province of Ontario. One or two meetings were called at which one or two representatives from the provinces were present. These meetings were marked by some heat and a good deal of indignation, and perhaps not quite as much calm consideration as might have been shown.

Out of this movement the idea occurred that it would be a good plan, in view of the very large number of questions of vital importance to live stock men which were constantly arising and demanding attention, to form a union of the live stock men of the four Western Provinces. Many of these men are isolated from their fellow members of the various associations, and have not as good an opportunity for meeting each other as you have in Eastern Canada. The idea was to form a union, particularly of the men west of the lakes. This idea was carried out at a meeting held in October, 1913. Somewhat to my surprise, I was elected president of that association. I have continued to occupy that position until now, although I think you will agree with me they could very easily make a more suitable selection.

We have done a good many things in that time, and one thing we have done is to put the live stock industry of Western Canada on the map. We have attracted attention which we never could have got before. I have been more or less connected with the Western movement since its inception. I was one of the men who met in 1890 to form a purebred cattle breeders' association for Manitoba and Saskatchewan. We were nothing if not ambitious, and from that little Association we formed then have sprung all the big Western live stock associations. Although they were very satisfactory, it was working in a more or less limited sphere, and that was very evident to me during the time I was Live Stock Commissioner at Ottawa. All sorts of barriers were erected, even as between adjoining provinces. Their purpose seemed to be to hold the local interests inviolate, and there was a lack of that broad spirit of inter-communication and the entire lack of development of inter-provincial trade which, as you know, is the vital point of the live stock breeding industry of the Dominion and of the North American continent.

Our men from British Columbia came across the mountains, and we have met in each province in rotation. We bring the live stock breeders from British Columbia into Manitoba and stir the Manitoba men up. And the Manitoba men go out to the Pacific coast and sniff the spicy breezes that come across the Pacific ocean and enjoy the balmy atmosphere in the winter time which we have not got in the prairie provinces, and they come back invigorated and refreshed; and the same is true of the Prairie Provinces of Saskatchewan and Alberta.

We have proven facts in many ways which you might have difficulty in understanding, because conditions are so essentially different there from what they are down here in Eastern Canada. The greatest difficulty that we encountered was to prevent the passing of resolutions which were not of much importance from a broad

point of view. Men would bring up subjects which they had been accustomed to discussing in their own little associations, and which had perhaps some local bearing, and they wanted the delegates from 1,500 miles away, who had never heard of their particular grievance, to endorse their resolution. It was very difficult to impress on the representatives from the various bodies for the first year or two that they had no right to do that sort of thing. If a man came to Manitoba as a delegate from the Sheep Breeders' Association in Alberta, and some man from Manitoba proposed a resolution which the man from Alberta, British Columbia, or Saskatchewan, had never heard about, they had no right to vote on that resolution, because their members at home had not authorised the passing of that resolution. We got over that difficulty by allowing the resolution to be passed tentatively and no action taken until the delegate has had an opportunity of consulting the members at home. As long as the resolution is one demanding some right from the Government, or railways or somebody else, every live stock man will back it up with every force at his command. We have to be very careful in endorsing a matter that will likely be contentious. We have to remember we cannot always express our own individual views, but have to consult our constituents before it is possible to take action safely.

We are only too glad to know the Eastern live stock men are getting together the way we have done out West. You will never regret it, but will find it is one of the best moves you ever made. It has a tendency to bring the men from different localities together, and any live stock man here who has stock that is worth selling, knows that is a big advantage. It is worth while in many different ways.

We of the Western Live Stock Union are somewhat puzzled, though I think that the explanation given last night has adjusted the difficulty. We were puzzled when we saw the proposal that members of breed associations were to be included in the membership. We felt that was not right, we felt we were perhaps members of those breed associations now. In fact, I suppose there is hardly a man belonging to the Western Live Stock Union who is not contributing to more than one of the breed Associations. We felt it was hardly fair that we who were members of the national breed associations should be made members again of the Eastern Canada Live Stock Union. We were members, paying our own way in the Western Canada Live Stock Union. I think you will agree that the proposal was not right.

Our organization is composed of a number of bodies—all local—in addition to the Government officers. We had not the temerity to suggest that we take into our membership the Dominion Clydesdale Association or the Shorthorn Association or the other breed societies, because we realized that our colleagues in the East had equal or perhaps a greater interest in those for the time being, and we did not venture to enlist them in the Western Canada Live Stock Union. And having taken this stand, we did not like the idea of enrolling in the Eastern Canada Live Stock Union, and that is a point to be cleared up.

There are two alternatives: one, for the Eastern Canada Live Stock Union to leave them out altogether, or if that is not thought desirable, to make them members of both associations, both Eastern and Western. We would be glad to welcome that addition to our annual income, which has not been very large at any time, and, fortunately for the union, we have been very careful in spending—being mostly Scotch. It is just a question as to whether this expenditure will be justifiable on their behalf.

I express the confident hope that we will be able to work together. We are ready, anxious and willing to do everything we can to further the live stock in-

terests of Canada from a national standpoint. We appreciate highly the manner in which we have been received down here, and the way in which our representations have been received. We have now, so far as Western Canada is concerned, and I think I speak for the full membership of the Western Canada Live Stock Union, absolutely nothing to complain of in regard to our treatment at the hands of our Eastern brethren. There is one thing certain, if any are complaining they are not making much noise, and the great majority are perfectly satisfied to go hand-in-hand with the Eastern breeders for the general improvement of the live stock industry in Canada.

I wish to refer to the proposed new Live Stock Council. I am entirely in favor of that move; I think it is desirable to have a council of that kind. I appreciate Mr. Arkell's desire to have the advice and assistance of such a body in the consideration of the many important matters with which, as Live Stock Commissioner, he is called upon to deal. I particularly appreciate the expressed desire that that body should remain independent of the Government. I have that troublesome thing, a long memory; and I have a very distinct recollection of the fact that while I was Live Stock Commissioner it became necessary for me to approach the Government to secure a sum of money to defray the expenses of the Record Board. It reminds me that, while independence is a fine thing, it has to be real independence, or it is not what it is cracked up to be. The rich breed Associations are finding independence; in fact, some are rolling in wealth. There are a number that are not independent of the Government, whose expenses are very largely paid by the Government every year. Apart from that we have that which we may look on as a right, that is, house room, fuel (which is getting to be an important matter nowadays), light, postage and stationery, and a number of other things furnished by the Government to the Record Board. We want to go carefully and see that our independence is real and not fictitious. If the Record Board was representative only of those Associations which are independent of the Government, it might well claim absolute independence from Government control, but if the Record Board represents, as it does, those organizations that are struggling, that is, that there are not sufficient funds to meet their annual expenses, then indirectly the Record Board will be receiving assistance from the Government.

I entirely agree with Mr. Smith in a matter of this kind, that Government assistance would be perfectly right and proper, and I do not think we should debate about that at all. I think if the Government of this country has not already awakened to the importance of encouraging the live stock industry in every way, shape, and form, it is about time it did wake up. I do not know any way in which a few thousand dollars could be better expended by the Government than to pay towards the maintenance of such a Board as it has been my privilege to attend this week. As long as the money is being spent for the development of the live stock industry, I do not think we need be a little bit ashamed to ask for and accept in as graceful a way as possible, financial assistance from the Government for this express purpose.

Western Ontario Poultry Association

The annual meeting of this Association was held December 4th, 1917.

OFFICERS.

President W. W. SIMPSON, Guelph.
First Vice-President G. G. HENDERSON, Hamilton.
Second Vice-President A. E. FIELD-MARSHALL, Beamsville.
Secretary-Treasurer R. W. WADE, Parliament Bldgs., Toronto.
Assistant Secretary-Treasurer .. R. E. MORTIMER, Parliament Bldgs., Toronto.

DIRECTORS.

JOS. RUSSELL, Toronto.
A. W. TYSON, Guelph.
STUART BRUCE, Hamilton.
W. W. CADMAN, Ostrander.

WALTER ROSE, Teeswater.
RICHARD OKE, London.
WM. McNEIL, London.
ALEX. McKEE, Windsor.

REPRESENTATIVES TO FAIR BOARDS.

Canadian National, Toronto: WM. McNEIL, London.
Western Fair, London: J. H. SAUNDERS, London; H. R. K. TOZER, London.
Ontario Provincial Winter Fair: J. H. SAUNDERS, London; W. W. SIMPSON, Guelph;
WM. McNEIL, London; A. W. TYSON, Guelph.

FINANCIAL STATEMENT OF THE WESTERN ONTARIO POULTRY ASSOCIATION.

For the Year Ending November 30th, 1917.

Receipts.

Cash on hand as per last Report	\$12 25	
Interest	1 13	
Membership Fees other than Exhibitors	9 00	
		\$22 38

EXPENDITURES.

Directors' Expenses	\$8 60	
Printing	4 25	
Cash on hand	9 53	
		\$22 38

CONSTITUTION OF THE ONTARIO POULTRY ASSOCIATION.

1. This Association incorporated under "The Agricultural Associations Act" shall be known as "The Ontario Poultry Association."

2. The object of this Association shall be: to encourage a general and constant improvement in poultry breeding, and a better organization of the interests of the breeders of poultry throughout the Province.

- (1) By co-operating with the Department of Agriculture.
- (2) By holding meetings to discuss matters of importance to the poultry industry of the Province.
- (3) By co-operating with exhibition and live stock associations and societies to advance the interests of live stock industry generally with special reference to the interests of the poultry industry.
- (4) By holding or assisting to hold competitive exhibitions and educational meetings.

MEMBERSHIP.

3. Any person on payment of \$1.00 becomes a member of this Association for the term of one year, said fee to be paid to the Secretary on or before the date of the closing of entries for the annual show.

MEETINGS.

4. The business year of the Association shall commence on the day following the closing of entries for the annual show and shall end on the day of the closing of entries for the year following. The annual meeting shall be held the evening of the first day of the annual show.

5. Notice of each annual meeting shall be printed in the Prize List for that year and this notice will constitute a notice of the meeting.

6. Representatives to Exhibition Associations when such are to be appointed, shall be elected at the Annual Meeting. These representatives shall carry out such instructions as may be given them by this Association.

7. No person other than a member of this Association shall be entitled to vote or take part at any meeting of this Association.

OFFICERS.

8. The Board of Directors shall consist of twelve members and shall be elected at the Annual Meeting.

9. In addition to the above twelve Directors, the Professor in charge of the Poultry Department of the Ontario Agricultural College shall, by reason of his office, be a Director.

10. There shall be a President, First Vice-President, and Second Vice-President, chosen from the thirteen Directors and elected at the Annual Meeting.

11. The Secretary-Treasurer shall be appointed from among the Directors or otherwise, by the Directors of the Association and shall hold office during the pleasure of the Board of Directors.

12. An Executive Committee shall be appointed to consist of the President, the First Vice-President, the Second Vice-President, the Secretary and two other Directors to be elected at the first meeting of the Board following the Annual Meeting. The Directors may also elect such other committees as may be necessary.

13. Five members shall be a quorum at any meeting of the Directors, and three members shall be a quorum at any meeting of the Executive.

14. The Executive shall meet at the call of the President, or in his absence, of a Vice-President, on at least three days' notice.

DUTIES OF OFFICERS.

15.—(a) The duties of the Executive shall be to prepare recommendations for Board Meetings, supervise finance, let contracts and arrange for printing and advertising, make necessary arrangements for holding exhibitions and deal with such questions as have not been decided by the Board, and carry out all matters referred to it by the Board. The President shall be Chairman of this Committee, and the Vice-President shall be Vice-Chairman. If necessary, the Executive may refer matters of detail to a smaller committee.

(b) The President shall preside at all meetings of the Board of Directors, and of the Executive, when present, and shall perform the duties usually appertaining to such office, and in his absence such duties shall be performed by the Vice-President, or in his absence by a Chairman to be chosen at the meeting.

(c) The Secretary shall attend and be present at the meetings of the Association, Directors, Executive, and Committees, and keep a true record of the transactions and proceedings at all such meetings, in a book or books, which shall be open to the inspection of the members thereof at all reasonable times. He shall also as such Secretary conduct all correspondence, issue all press and other reports and notices and prepare for publication the annual report.

(d) 1. The Treasurer shall receive and have custody of moneys and valuable papers of the Association. He shall cause to be entered in books kept for that purpose, a correct statement of all moneys received and disbursed on account of the Association, which books shall be open at all reasonable times to the inspection of the members thereof. The Treasurer shall prepare for the annual meeting a complete statement of the receipts and disbursements in which shall be shown the expenses of management, and shall perform such other duties in connection with the finances as may be required of him by the Constitution and the Rules and Regulations and by the lawful orders and resolutions of the Board.

2. All funds shall be deposited to the credit of the Ontario Poultry Association in a chartered Bank of the Dominion of Canada, to be selected by the Executive, and all payments shall be made by cheque drawn on

such bank by the Treasurer and countersigned by the President. In the absence of either of these officials, cheques may be signed by persons duly authorized by the Executive.

(c) An Auditor shall be appointed by Resolution at the Annual Meeting of the Association.

16. Expenses may be paid members of the Board of Directors attending Board meetings, and of members of duly appointed committees when performing the duties in connection with their office. Expenses to be railway fare and four dollars (\$4.00) per day.

17. When practicable the business of the Board or of any Committee may be conducted by correspondence.

18. Any part of this Constitution or any By-laws of the Association may, subject to the Act of Incorporation, be amended or changed at any annual or properly called special meeting, by a two-thirds vote of the members present at such meeting.

19. The order of business at all meetings of this Association shall be:—

1. Reading Minutes.
2. Reports of Officers.
3. Reports of Committees.
4. Election of Officers.
5. New Business.
6. Adjournment.

Western Ontario Seed Growers' Association

The annual meeting of this Association was held at the Winter Fair, Guelph, . December 5th, 1917.

OFFICERS.

President A. McKENNEY, Amherstburg.

Vice-President A. S. MAYNARD, Chatham.

Executive-Committee . R. E. MORTIMER, Honeywood; W. J. SQUIRRELL, O.A.C., Guelph.

Secretary-Treasurer .. W. J. W. LENNOX, Toronto.

DIRECTORS.

WILL BARRIE, Galt.

R. E. MORTIMER, Honeywood.

B. R. COHOF, South Woodslee.

A. McKENNEY, Amherstburg.

R. R. MOORE, Norwich.

A. S. MAYNARD, Chatham.

C. M. LAIDLAW, Powassan.

A. W. MASON, O.A.C., Guelph.

A. McMEANS, Brantford.

H. L. McCONNELL, Port Burwell.

J. W. CROW, O.A.C., Guelph.

Representatives to Ontario Provincial Winter Fair: A. McKENNEY, Amherstburg; R. E. MORTIMER, Honeywood; W. J. W. LENNOX, Toronto; W. J. SQUIRRELL, O.A.C., Guelph.

FINANCIAL STATEMENT OF THE WESTERN ONTARIO SEED GROWERS' ASSOCIATION.

For the Year Ending November 30th, 1917.

Receipts.

Cash on hand as per last report	\$80 90	
Membership fees received	62 00	
	\$142 90	\$142 90

Expenditures.

Cash on hand	\$142 90	
	\$142 90	\$142 90

APPENDIX
TO
ANNUAL REPORT
OF THE
LIVE STOCK BRANCH
1917

CO-OPERATIVE WOOL SALES

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO :
Printed by A. T. WILGRESS, Printer to the King's Most Excellent Majesty
1918

Printed by
WILLIAM BRIGGS
Corner Queen and John Streets
TORONTO

Ontario Sheep Breeders' Association.

OFFICERS

President—JAMES DOUGLAS, Caledonia, Ont.

Vice-President—GEO. L. TELFER, Paris, Ont.

Secretary-Treasurer—R. W. WADE, Parliament Buildings, Toronto.

Directors:

J. D. BRIEN, Ridgetown, Ont.

CECIL STOBBS, Leamington, Ont.

E. ROBSON, Denfield, Ont.

JAMES BOWMAN, Guelph, Ont.

J. E. COUSINS, Harriston, Ont.

H. M. LEE, Highgate, Ont.

J. LLOYD-JONES, Burford, Ont.

W. WHITELOW, Guelph, Ont.

BREEDS OF SHEEP.

SOUTHDOWN SHEEP.

DESCRIPTION AND SCALE OF POINTS.

<i>Head</i> —General character and appearance	10
Wide, level between the ears with no sign of slug (short, stunted horn), or dark poll	8
<i>Face</i> —Full, not too long from the eyes to nose, and of one even mouse color, not approaching black or speckled, under jaw light	4
<i>Eyes</i> —Large, bright and prominent	2
<i>Ears</i> —Of medium size, and covered with short wool	2
<i>Neck</i> —Wide at the base, strong and well set on to the shoulders, throat clean.	5
<i>Shoulders</i> —Well set, the top level with the back	7
<i>Chest</i> —Wide and deep	5
<i>Back</i> —Level, with wide flat loin	10
<i>Ribs</i> —Well sprung, and well ribbed up, thick through the heart, with fore and hind flanks fully developed	7
<i>Rump</i> —Wide, and long and well turned	4
<i>Tail</i> —Large, and set on almost level with the chine	4
<i>Legs of Mutton</i> —(Including thighs), which should be full, well let down, with a deep wide twist	10
<i>Wool</i> —Of fine texture, great density, and of sufficient length of staple, cover- ing the whole of the body down to the hocks and knees and right up to the cheeks, with a full foretop, but not round the eyes, or across the bridge of the nose	10
<i>Skin</i> —Of a delicate bright pink	5
<i>Carriage</i> —Corky, legs short, straight, and legs of one even mouse colour and set on outside the body	7



Southdowns.

DISQUALIFICATIONS.

The following are reasons why Judges should not at Breeding Stock Shows award a prize to otherwise good sheep:

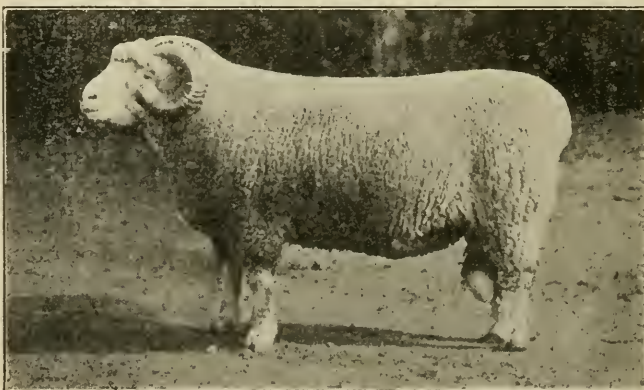
- (a) Horns, or evidence of their presence.
- (b) Dark poll.
- (c) Blue skin.
- (d) Speckled face, ears and legs.
- (e) Bad wool.

DORSET HORN SHEEP.

STANDARD OF EXCELLENCE.

Rams—Bold masculine appearance and of robust character, head of great beauty, with strong and long horns growing from the head well apart, on the crown, in a straight line with each other, and coming downwards and forwards in graceful curves as close to the face as may be without necessitating cutting.

Ewes—Appearance bright with feminine characteristics. The horns much smaller and more delicate than in the ram.



Dorset Horn.

GENERAL CHARACTERISTICS.

Head—Broad, full and open at the nostril, well covered with wool from brow to poll, face white, with pink nose and lips.

Ears—Medium size and thin.

Teeth—Flat and chisel shaped.

Neck—Short and round, well sprung from shoulders, with no depression at the collar, strong and muscular, especially in the ram.

Chest—Well forward, full and deep.

Fore Flank—Full, with no depression behind the shoulder.

Shoulders—Well laid and compact.

Back and Loins—Broad, long and straight, with well sprung ribs.

Quarters—Full, broad and deep, with flesh extending to the hocks.

Ribs—Well sprung from the back and deep at the sides.

Tail—Well set up in a line with the back, wide, firm and fleshy.

Legs—Well placed at the four corners, straight between the joints with plenty of bone, well woolled to or below the knees and hocks.

Fleece—Of good staple and quality, compact and firm to the touch.

HAMPSHIRE DOWN SHEEP.

STANDARD OF EXCELLENCE.

Head—Face and ears of a rich dark brown—approaching to black, well covered with wool over the poll and forehead. Intelligent bright full eye. Ears well set on, fairly long and slightly curved. In rams, a bold masculine head is an essential feature.

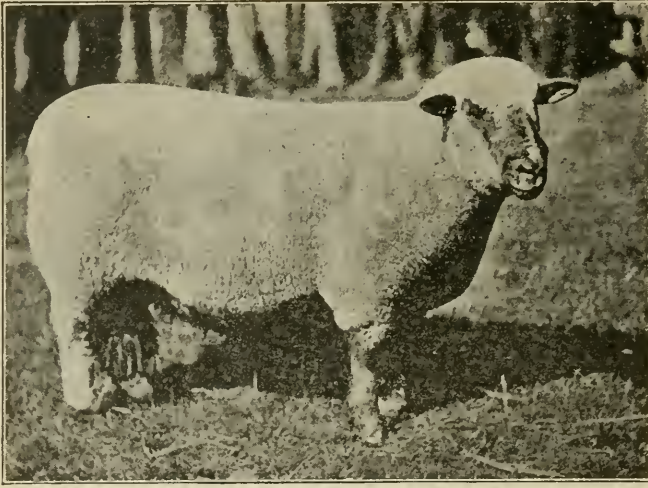
Neck and Shoulders—Neck of strong muscular growth, not too long, and well placed on gradually sloping and closely fitting shoulders.

Carcases—Deep and symmetrical, with the ribs well sprung, broad straight back, flat loins, full dock, wide rump, deep and heavily developed legs of mutton and breast.

Legs and Feet—Strongly jointed and powerful legs of the same colour as face, set well apart, the hocks and knees not bending towards each other. Feet sound and short in the hoof.

Wool—White, of moderate length, close and fine texture, extending over the forehead and belly, the scrotum of rams being well covered.

Skin—Pink and flexible.



Hampshire Down.

OBJECTIONS.

Objections—Snigs. White specks on face, ears and legs. Thick coarse ears. Black wool. Coarse wool on breeches. Protruding under jaw. Excessive loose skin under neck.

SUFFOLK.

SCALE OF POINTS.

<i>Head</i> —Hornless: Face black (glossy black) and long, and muzzle moderately fine—especially in ewes. (A small quantity of clean white wool on the forehead not objected to.) Ears, a medium length, black and fine texture. Eyes, bright and full	25
<i>Neck</i> —Moderate length and well set. (In rams stronger, with a good crest) ..	5
<i>Shoulder</i> —Broad and oblique	5
<i>Chest</i> —Deep and wide	5
<i>Back and Loin</i> —Long, level, and well covered with meat and muscle; tail broad and well set up; the ribs long and well sprung, with a full flank ..	20
<i>Legs and Feet</i> —Straight and black (glossy black), with fine and flat bone. Woolled to knees and hocks, clean below. Fore legs set well apart. Hind legs well filled with mutton	20
<i>Belly (also Scrotum of Rams)</i> —Well covered with wool	5
<i>Fleece</i> —Moderately short; close fine fibre without tendency to mat or felt together, and well defined, <i>i.e.</i> , not shading off into dark wool or hair ...	10
<i>Skin</i> —Fine, soft, and pink colour	5
Total	100



Suffolk.

OXFORD DOWN RAM

DESCRIPTION.

Head—Bold masculine head, well set on a strong neck, with poll well covered with wool.

Face—Of a uniform dark brown colour.

Ears—Of good length.

Shoulder—Broad.

Breast—Broad, well forward.

Back—Full, level.

Ribs—Well sprung.

Barrel—Deep, thick and long, with straight underline.

Legs—Short and dark coloured (not spotted), standing square and well apart.

Mutton—Firm, lean and of excellent quality.

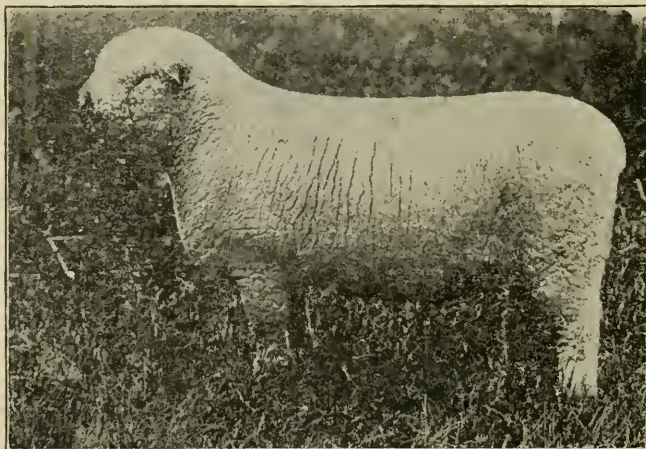
Wool—Covering the whole body, of close texture, good length and fine quality.



Oxford Down.

SHROPSHIRE SHEEP

	Counts
<i>General Appearance</i> —Attractive, indicating breeding and quality, with stylish carriage and a symmetrical form, covered with dense fleece	25
<i>Constitution</i> —Robust as indicated by width and depth of chest, strength and formation of neck, and by bold active movement	10
<i>Size</i> —In breeding conditions when fully matured, rams should weigh not less than 180 to 225 pounds, and ewes should weigh not less than 125 to 170 pounds	10
<i>Fleece and Skin</i> —Fleece of good length, dense, elastic to touch, medium fine, free from black fibre, slightly crimped, with evenness of texture throughout; scrotum of rams well covered with wool; skin light cherry colour, clear and free from dark spots	15
<i>Body</i> —Well proportioned, with shoulders well placed, fitting smoothly upon chest, which should be deep and wide, broad and straight back, thick loins, well covered with firm flesh; hind quarters well finished; twist deep and full	20
<i>Head and Neck</i> —Head, short, broad between the ears and eyes, bold and masculine in rams, without horns, well covered with wool, ears short and erect, eyes bright, colour of face and ears dark brown. Neck of medium length, strong and masculine (especially in rams), symmetrically joined to head and shoulders	15
<i>Legs</i> —Well set apart, broad, short, straight, colour dark brown and well woolled; pastern strong and upright	5
Total	100



Shropshire.

BORDER LEICESTERS.

Head—Carried rather boldly, erect and stately; moderately fine, tapering nicely to the nostrils; rather long and free from any growth of wool; covered with short white hair.

Face—Clear white; rather long and somewhat convex, giving a slight Roman effect, more noticeable in the rams.

Nostrils—Wide and expanded; nose dark.

Eyes—Bright and clear, but mild.

Ears—Thin, moderately long; carried erect and alert; covered with short hair, but may show dark spots in the skin, which will be covered with dark hairs.

Collar—Full from breast and shoulders, tapering gradually to junction of head and neck.

Shoulders—Broad and full; smooth and even, without depression either towards neck or back.

Fore Legs—Straight and clean; covered with white hair. Bone fine, but of good quality.

Breast—Broad and well developed, making good width between the fore legs. Girth and chest full and deep.

Fore Flank—Quite full, leaving no depression behind the shoulder.

Back and Loin—Very broad; ribs well arched, giving the back a wide, flat appearance.

Belly—Even and covered with wool.

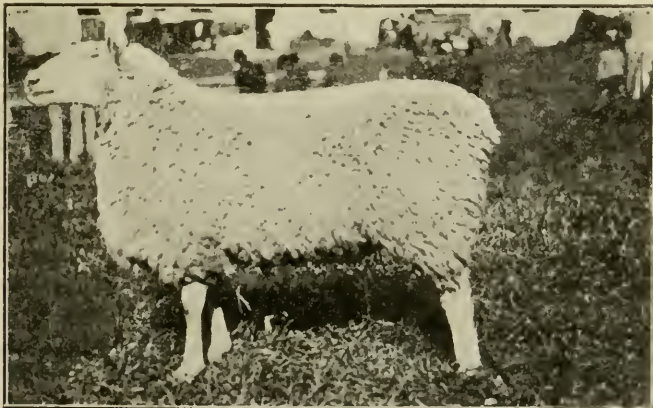
Quarters—Long and full, carrying the mutton well down to the hocks.

Hock—Straight and clean.

Twist—Low, wide and full.

Skin—Pink and clear; free from spots on the body.

Fleece—The whole body, excepting the head and legs, should be covered with a glossy wool of good fibre, hanging in dense spirals which carry their “crimp” or wave right in to the skin. The fleece should consist of a mass of distinct curls, all over the body, without the “parting” along the spine as in some other long-wooled breeds.

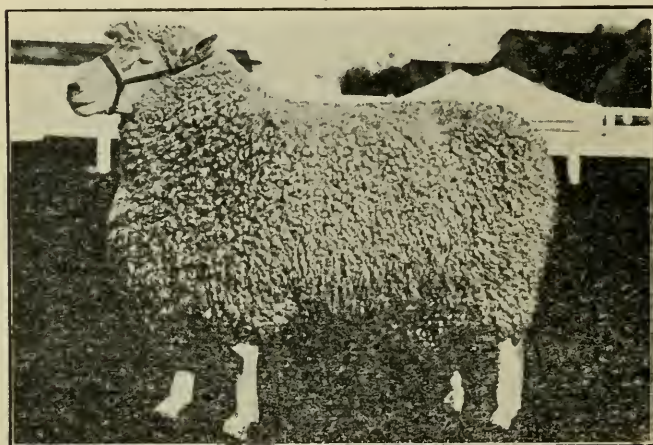


Leicesters.

SCALE OF POINTS FOR A LINCOLN RAM.

Points

1. Good symmetry, shoulders well back with head up, must stand straight and level on hocks and fetlocks	10
2. <i>Size</i> —A Lincoln is essentially a big sheep, but this is not to mean length of leg only	10
3. <i>Length and Girth</i> —Length of body consistent with a deep rib, wide spring	10
4. <i>Head and Ears</i> —A good masculine head with deep wrinkles on forehead, a clear bold eye, wide nostrils, blue skinned, not pink. Ears long and well placed, not pointing too forward or “lopping”; white ears objectionable; colour should be a blue grey, mingled with darker spots	10
5. <i>Bone and Substance</i> —A Lincoln ram needs a strong bone to carry his weight	10
6. <i>Activity</i> —The ram must walk free and gayly	10
7. <i>Mutton</i> —Deep, firm handling flesh along back, a wide loin, no hardness of touch on top of shoulder, a good wide “scrag.” Leg of mutton well let down	20
8. <i>Fleece</i> —Of great importance. Great weight of wool without coarseness; a broad, clean staple of fine lustres, that is, a wavy appearance in the lock; soft or what is termed “mossy” wool objectionable; no harsh, straight hairy wool on thighs; head to be well covered and a broad forelock; breast and inside the thighs to be covered	20
Total	100



Lincoln.

CHEVIOT SHEEP.

A Cheviot Tup when arrived at maturity weighs when fat at least 200 lbs. live weight. He should have a lively carriage, bright eyes, and plenty of action.

Head—Of medium length, broad between the eyes, well covered with short, fine, white hair.

Ears—Nicely rounded and not too long, should rise erect from the head; low set, or drooping ones, are a decided fault, but at the same time they should not be what are called "hair-lugged," that is, too near each other, as that indicates a narrow face, which generally denotes a narrow body.

Nose and Nostrils—Black, full and wide open.

Neck—Strong and not too long.

Breast—Broad and open.

Legs—Set well apart.

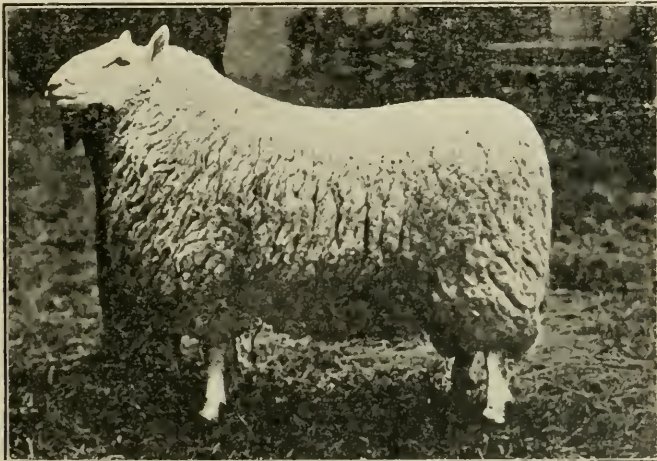
Ribs—Well sprung, and carried well back towards the hook bones, as a long weak back is about the worst fault a Cheviot can have.

Back—Must be broad and well covered with mutton. His hind quarters full, straight and square.

Tail—Well hung, nicely fringed with wool.

Legs—Must stand squarely from the body (if bent hocks, either out or in, the latter especially, are looked upon as a weakness), the bone must be broad and flat, and all must be covered with short, hard, white hair.

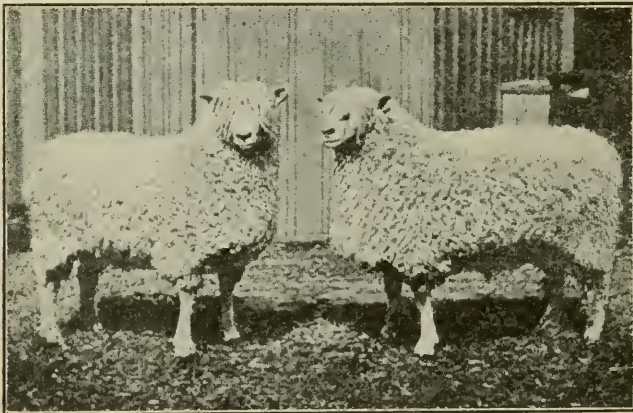
Wool—He ought to grow a fleece weighing 10 or 12 lbs. of fairly fine wool, densely grown, and of equal quality; coarseness on the top of the hocks is a decided blemish; the wool should meet the hair at the ears and cheeks in a decided ruffle; bareness there or at the throat is inadmissible, and it should grow nicely down to the hocks and knees. The belly and breast ought also to be well covered. The same description when modified will apply to ewes also, which will weigh 100 to 150 lbs. Cheviots, when in a natural state, must grow finer wool, as hard feeding inclines to make it stronger, but it must be stiff and dense and not too short. A hill flock should clip on the average $4\frac{1}{4}$ lbs. each.



Cheviot.

COTSWOLD SHEEP.

	Points
<i>Head</i> —Moderately fine, broad between the eyes and nostrils, but without a short, thick appearance, and well covered on crown with long lustrous wool	8
<i>Face</i> —Either white or slightly mixed with grey, or white dappled with brown.	4
<i>Nostrils</i> —Wide and expanded. Nose dark	1
<i>Eyes</i> —Prominent, but mild looking	2
<i>Ears</i> —Broad, long, moderately thin, and covered with short hair	4
<i>Collar</i> —Full from breast and shoulders, tapering gradually all the way to where the neck and head join; neck should be fine and graceful, and free from coarse and loose skin	5
<i>Shoulders</i> —Broad and full, and, at the same time, joined so gradually to the collar forward and chine backwards as not to leave the least hollow in either place	8
<i>Fore Legs</i> —The mutton on the arm should come quite to the knee. Leg upright with heavy bone—being clear from superfluous skin, with wool to fetlock and may be mixed with grey	4
<i>Breast</i> —Broad and well forward, keeping the legs wide apart. Girth and chest full and deep	10
<i>Fore Flank</i> —Quite full, not showing hollow behind the shoulder	4
<i>Back and Loin</i> —Broad, flat and straight, from which the ribs must spring, with a fine circular arch	12
<i>Belly</i> —Straight on underline	5
<i>Quarters</i> —Long and full, with mutton quite down to the hock	8
<i>Hock</i> —Should stand neither in nor out	2
<i>Twist</i> —Or Junction inside of thighs, deep, wide and full, which with a broad breast will keep the legs open and upright	5
<i>Fleece</i> —The whole body should be covered with long, lustrous wool, having a bold, open curl	18
Total	100



Cotswold.

NAMES OF SHEEP OF DIFFERENT AGES.

Old Country Names and Terms.

Age	Male.	Female.
Young Lamb	Tup	Chilver.
Up to 1 yr.	Tup, Hogget	Ewe Teg Ewe Hogg.
	Wedder Teg	Ewe Hogget.
1 to 2 yrs.	Shearling Ram	
	or Hogg	Gimmer.
2 to 3 yrs.	Two-Shear or	
	Wedder	Gimmer.

CAST EWES, discards from a breeding flock.

SHOTTS, TAILS, SHEDDINGS, culled sheep.

CRONE, an old ewe.

CROCK, a ewe bred to a ram of another breed.

YELD, a barren ewe.

RIG, an imperfectly castrated male.

THE SHEEP'S MOUTH.

A lamb has its first set of *milk* teeth at about four weeks of age. They consist of eight evenly-sized small teeth on the lower jaw. At one year the two middle milk teeth are replaced by two large permanent teeth. At two years the second pair of milk teeth are replaced by permanent teeth. At three years the third pair are replaced, and at four years the last pair of milk teeth are replaced, leaving the animal with a "full mouth" of permanent teeth. It has been observed that occasionally where sheep are particularly well fed and cared for and maturity hastened, dentition takes places somewhat earlier.

SHEEP POPULATIONS.

—	1901	1911	1912	1913	1914
Nova Scotia.....	285,244	220,907	216,135	217,734	211,921
Prince Edward Island.....	125,446	91,232	87,793	85,660	85,351
New Brunswick.....	182,524	158,216	148,723	135,115	121,739
Quebec	654,503	637,062	620,881	602,751	571,287
Ontario.....	1,046,456	743,483	677,492	705,848	640,416
Manitoba.....	29,464	37,322	40,800	42,840	45,303
Saskatchewan .....	.....	114,216	114,810	115,568	126,027
Alberta.....	.....	133,592	135,075	178,015	211,001
North West Territories.....	153,152	.....	.....	.....	.....
British Columbia.....	33,350	39,272	40,702	45,000	45,000
Canada.....	2,510,239	2,175,302	2,082,381	2,128,531	2,058,045
United Kingdom.....	.....	30,479,807	28,967,495	.....	.....
Australia .....	.....	93,003,521	83,655,302	.....	.....
New Zealand.....	.....	23,996,126	23,750,153	24,191,810	.....
United States.....	.....	53,633,000	52,362,000	51,482,000	49,719,000
Argentina .....	.....	80,401,486	.....	.....	.....

TABLE SHOWING VARIATION IN PRICES ON TORONTO MARKET.

	Lambs.		Wool (Unwashed)	
	High.	Low.	High.	Low.
	\$ c.	\$ c.	c.	c.
1901.....	5 00	4 25	.09	.08
1902.....	4 50	3 00	.07	.....
1903.....	4 60	3 50	.09	.08
1904.....	4 50	3 50	.13	.09
1905.....	5 50	5 00	.15	.13
1906.....	7 00	5 00	.18	.16
1907.....			.14	.13
1908.....			.14	.13
1909.....			.14	.13
1910.....	9 50	4 00	.14	.13
1911.....	9 00	4 00	.14	.12
1912.....	11 00	5 00	.14	.12
1913.....	11 50	6 00	.17	.15
1914.....	11 50	4 50	.20	.16½
1915.....	12 50	6 00	.43*	.39*
1916.....	17 00	9 50	.52*	.28*
1917.....	17 50	12 00	.62	.40

* Washed wool.

NOTES ON FEEDING.

CLOVER HAY VS. ALFALFA HAY AS ROUGHAGE FOR FATTENING LAMBS.

(From Bulletin 192, Purdue University, Indiana.)

This shows a comparison between clover hay and alfalfa hay as roughage for fattening lambs. Both lots of lambs were treated alike in all particulars except that one received clover hay and the other alfalfa hay. The clover hay used was of medium quality but as good as could be secured locally. It was not possible to secure clover hay entirely free from mold, but the lambs ate it with relish. The alfalfa hay fed was of excellent quality and well cured.

TABLE 1—CLOVER HAY VS. ALFALFA HAY AS ROUGHAGE FOR FATTENING LAMBS,
OCTOBER 28, 1915, TO FEBRUARY 5, 1916.

Ration.	Lot 3.	Lot 4.
	Shelled Corn, Clover.	Shelled Corn, Alfalfa.
Average initial weight.....	56.4 lbs.	56.1 lbs.
Average final weight.....	80.4 "	82.1 "
Gain per lamb.....	24.0 "	26.0 "
Average daily gain.....	.24 "	.26 "
Average daily feed per lamb—		
Grain.....	1.01 "	1.01 "
Hay.....	1.82 "	1.70 "
Feed per pound gain—		
Grain.....	4.19 "	3.87 "
Hay.....	7.57 "	6.55 "
Cost per 100 lbs. gain.....	\$ 8 81	\$ 7 87
Selling value of lambs in feed lots.....	10 20	10 75
Profit per lamb.....	1 02	1 74

It will be noted that the grain consumption by the lambs was the same in both lots but that the hay consumption was higher when clover hay was fed. The gain made by the lambs, however, was greater in Lot 4 receiving alfalfa hay than in Lot 3 receiving clover hay, the difference being two pounds per lamb in one hundred days. The cost of gains was, therefore, considerably cheaper when alfalfa hay was used than when clover hay was fed, both hay and grain requirements being less with the alfalfa hay in the ration. Each hundred pounds of gain cost \$7.87 with corn and alfalfa hay as compared with \$8.81 with corn and clover hay. The finish on the lambs was also better when alfalfa hay was fed. The lambs fed corn and clover hay returned a profit of \$1.02 per head as compared with \$1.74 per head when corn and alfalfa hay were fed. This trial does not agree with two previous trials at Purdue on this subject. Former trials have shown more rapid and economical gains by the use of clover hay than alfalfa hay. The difference this year should be attributed principally to the difference in the quality of the hay.

TABLE 2.—CORN AND CLOVER HAY VS. CORN, CLOVER HAY, AND CORN SILAGE FOR FATTENING LAMBS, OCTOBER 28, 1915, TO FEBRUARY 5, 1916.

Ration.	Lot 3.	Lot 6.
	Shelled Corn, Clover.	Shelled Corn, Clover, Silage.
Average initial weight.....	56.4 lbs.	56.3 lbs.
Average final weight.....	80.4 "	81.0 "
Gain per lamb	24.0 "	24.7 "
Average daily gain.....	.24 "	.247 "
Average daily feed per lamb—		
Grain.....	1.01 "	1.01 "
Hay.....	1.82 "	1.17 "
Silage.....		1.12 "
Feed per pound gain—		
Grain.....	4.19 "	4.07 "
Hay.....	7.57 "	4.74 "
Silage.....		4.52 "
Cost per 100 lbs. gain	\$ 8 81	\$ 8 00
Selling value of lambs in feed lots	10 20	10 30
Profit per lamb	1 02	1 31

Table 2 shows that the addition of corn silage to a ration of shelled corn and clover hay had no effect on the grain consumption, but that 112 pounds of silage replaced 65 pounds of clover hay in roughage consumption. The gains made by the lambs were so nearly the same in the two lots that the difference is negligible. In economy of gain the lambs fed corn silage showed a saving of 81 cents on each hundred pounds of gain, 452 pounds of corn silage replacing 283 pounds of hay and 12 pounds of corn. The selling value of the lambs was slightly increased by the use of corn silage, as is shown by the selling price of the two lots of lambs. When corn and clover hay were fed the average profit per lamb was \$1.02 as compared with \$1.41 by the lambs fed corn, clover hay and corn silage.

OPEN SHED VS. BARN AS SHELTER FOR FATTENING LAMBS.

(From Bulletin 192, Purdue University, Indiana.)

This shows the influence of shelter on fattening lambs. Lot 6 was fed in an open shed containing a space 14 by 16 feet under cover and 14 by 14 feet in the open. Lot 9 was fed in a barn with three windows on the north, one on the south, and one on the east, which were kept open for ventilation. The lambs were confined to a space 14 by 24 feet. There was a floor space in the barn, however, of 36 by 44 feet, with no other animals in the barn, thus giving excellent ventilation for the lambs.

TABLE 3—OPEN SHED VS. BARN AS SHELTER FOR FATTENING LAMBS,
OCTOBER 28, 1915, TO FEBRUARY 5, 1916.

Ration.	Lot 6.	Lot 9.
	* Open shed.	* Barn.
Average initial weight.....	56.3 lbs.	56.2 lbs.
Average final weight.....	81.0 "	80.1 "
Gain per lamb.....	24.7 "	23.9 "
Average daily gain.....	.247 "	.239 "
Average daily feed per lamb—		
Grain.....	1.01 "	1.01 "
Hay.....	1.17 "	1.17 "
Silage.....	1.12 "	1.09 "
Feed per pound gain—		
Grain.....	4.07 "	4.22 "
Hay.....	4.74 "	4.91 "
Silage.....	4.52 "	4.57 "
Cost per 100 lbs. gain.....	\$ 8 00	\$ 8 27
Selling value of lambs in feed lots.....	10 30	10 30
Profit per lamb.....	1 31	1 22

* Ration was shelled corn, clover hay, and corn silage.

Table 3 shows that there was no difference in grain or hay consumption between the two lots, but that the silage consumption was slightly greater in the open shed. This was due to the fact that the lambs in the barn did not learn to eat silage as early as those in the open. After they had learned to eat their silage well there was no difference in the silage consumption between the two lots. The gain was slightly more rapid for the lambs in the open shed, the gain per lamb being 24.7 pounds in Lot 6 and 23.9 pounds in Lot 9 fed in the barn. The feed required to make a pound of gain was less in Lot 6 fed in the open shed than in Lot 9 fed in the barn. Each hundred pounds of gain cost \$8.00 per hundred pounds when the lambs were in an open shed as compared with \$8.27 per hundred pounds when the lambs were fed in the barn. The finish on the lambs was the same in both lots, as is indicated by the valuation of \$10.30 per hundred pounds for both lots of lambs. Owing to the fact that the lambs in the open shed made more economical gains, there was a slight difference in the profit between the two lots in favour of feeding in the open shed. The lambs in Lot 6 returned a profit of \$1.31 per head as compared with \$1.22 per head by lambs in Lot 9 fed in a barn. These results are typical of those received in previous trials.

ACTUAL EXPENDITURES.

Original cost of 250 lambs in feed lot	\$1,225 60
Cost of feed while on experiment.....	438 86
Cost of feed after experiment closed.....	46 73
Total cost.....	\$1,711 19

ACTUAL RECEIPTS.

Knollin Sheep Commission Co.....	193 lambs	\$1,683 56
Dryfus Packing Co.....	35 "	253 25
".....	18 "	86 22
Total receipts		\$2,023 03
Total actual profit		311 84

THE VALUE OF OATS FOR LAMBS.

(From Bulletin 184, Purdue University, Indiana.)

Oats are probably as good grain as can be found for starting lambs on feed and this station makes a practice of teaching the lambs to eat by feeding them oats. However, there is quite a practice among sheep Feeders of feeding oats throughout the entire feeding period. The economy of such a practice has been under investigation at this station for three years. The trial conducted in the winter of 1914-15 is reported in this bulletin. Lot 6 was fed shelled corn, clover hay, and corn silage and Lot 2 was fed a grain mixture of corn two parts, oats one part, clover hay and corn silage. The results are shown in Table 4.

TABLE 4—CORN VS. CORN AND OATS AS GRAIN FOR FATTENING LAMBS,
NOVEMBER 5, 1914, TO FEBRUARY 3, 1915.

Ration.	Lot 6.		Lot 2	
	Shelled corn, Clover, Silage.		Shelled corn 2 parts, Oats 1 part, Clover, Silage.	
Average initial weight.....	56.6	lbs.	56.7	lbs.
Average final weight	86.0	"	84.3	"
Gain per lamb	29.4	"	27.6	"
Average daily gain	.327	"	.307	"
Average daily feed per lamb:				
Grain	1.08	"	1.00	"
Hay	1.12	"	1.03	"
Silage	1.38	"	1.38	"
Feed per pound gain:				
Grain.....	3.31	"	3.26	"
Hay	3.43	"	3.35	"
Silage	4.23	"	4.51	"
Cost per 100 lbs. gain.....	\$7 41		\$7 79	
Selling value of lambs in feed lots.....	8 65		8 60	
Profit per lamb.....	1 04		87	

For forty days the grain consumption was the same in both lots, but thereafter the lambs in Lot 6 would consume slightly larger quantities of grain. The difference in the appetites was shown at the end of three weeks in hay consumption when Lot 2 receiving the oats, refused to eat as much hay as the lambs in Lot 6

not receiving oats. This difference in feed consumption was not extremely marked yet it showed some difference in the appetites of the lambs. The gains were slightly larger in Lot 6 not receiving oats, the total gain being 29.4 pounds per lamb in ninety days as compared with 27.6 pounds per lamb when the grain ration consisted of corn and oats. The grain and hay required to make a pound of gain was slightly greater in Lot 6 than in Lot 2 receiving oats, but the silage requirement per pound of gain was larger in the latter lot. Each hundred pounds of gain cost \$7.41 in Lot 6 and \$7.79 in Lot 2. The lambs not receiving oats were valued at \$8.65 per hundred pounds as compared with \$8.60 per hundred pounds for lambs fed oats in addition to the corn. The profit per lamb was \$1.04 in Lot 6 as compared with 87 cents in Lot 2 receiving the oats in addition to the corn.

WHEAT SCREENINGS.

(From "Feeds and Feeding," by Henry & Morrison.)

The value of wheat screenings from the elevators and mills depends on their quality, the light chaffy grades being more like a roughage than a concentrate. Successful feeders wisely utilize screenings of low grade in getting the lambs on feed, and as fattening advances change to the heavier screenings. Hundreds and thousands of Montana sheep and lambs were annually fed during the nineties on wheat screenings in feed lots near St. Paul, Minnesota. The screenings were fed in sheds and usually from self-feeders, as the bits of chaff and straw in the feed render it so bulky that there is less danger of foundering than when corn is fed in self-feeders. With the bulky class of screenings which were used, little or no hay was required. During the season of 1902 about 330,000 sheep and lambs were fattened in these feed lots. Two years later the number fell below 200,000, and at the present time, because of prohibitory prices for screenings and their poor quality, this district has ceased to be a factor of importance in the winter mutton supply. Screenings are still employed more or less extensively in other sections of the country for sheep feeding.

The relative value of heavy wheat screenings and good wheat for fattening lambs is shown in the following table summarizing 3 trials, from 90 to 97 days in length, where either clover or alfalfa hay was fed for roughage to lambs averaging 58 lbs. in weight.

WHEAT SCREENINGS VS. GOOD QUALITY WHEAT FOR LAMBS.

Average ration.	Daily gain.	Feed for 100 lbs. gain.	
		Grain.	Hay.
Lot I—68 Lambs.	lbs.	lbs.	lbs.
Wheat screenings, 0.8 lb., Legume hay,			
1.8 lbs.	0.26	307	695
Lot II—70 Lambs.			
Wheat, 0.8 lb., Legume hay, 1.7 lbs...	0.22	347	744

The table shows that when fed with legume hay heavy-weight screenings produced larger and more economical gains than good wheat. Foster and Merrill found that it required 35 per cent. more light-weight, chaffy screenings than those

of heavy weight for 100 lbs. of gain. Screenings should be fed close to the mills or elevators, thereby avoiding large freight bills. As with wheat, the best returns come through feeding in combination with legume hay.

Lambs fed by Hays at the Minnesota Station on unground screenings containing 90 per cent. of either small wheat, wild buckwheat, or pigeon-grass seed, made as large gains as others receiving cracked corn, but required 42 per cent. more grain per 100 lbs. gain, in the case of those fed small wheat, and 67 per cent. more with those fed pigeon-grass seed. To prevent the spread of weeds, screenings should be ground.

OATS.

This grain, so well liked by sheep, is especially useful and safe, in getting them on feed and is excellent for the breeding flock.

Owing to their usual high price and the fact that they induce growth rather than fattening, oats are rarely economical as the sole grain for fattening sheep. When used, the proportion of oats to other concentrates should be decreased as the fattening period progresses. At the South Dakota Station Wilson and H. G. Skinner compared the value of oats and shelled corn as the sole grain for lambs fed mixed prairie and brome hay for roughage in trials averaging 111 days, with the results shown in the following table. In the second division of the table are given the results secured by J. H. Skinner and King at the Indiana Station in three 90-day trials, in which a mixture of oats and corn was compared with shelled corn alone, clover hay and corn silage forming the roughage.

VALUE OF OATS FOR FATTENING LAMBS.

Average ration.	Initial weight.	Daily gain.	Feed for 100 lbs. gain.		
			Grain.	Hay.	Silage.
	lbs.	lbs.	lbs.	lbs.	lbs.
Oats vs. corn:					
Lot I—10 lambs.					
Oats, 1.6 lbs., mixed hay, 1.3 lbs...	70	0.25	650	535	
Lot II—10 lambs.					
Shelled corn, 1.5 lbs., mixed hay, 1.3 lbs.....	71	0.28	561	485	
Oats and corn vs. corn;					
Lot I—total of 75 lambs.					
Oats, 0.5 lbs., corn, 0.7 lbs., clover hay, 1.0 lb., corn silage 1.4 lbs..	60	0.32	365	329	453
Lot II—total 75 lambs.					
Corn 1.2 lbs., clover hay, 1.1 lbs., corn silage, 1.4 lbs.....	60	0.33	349	323	428

Both in the South Dakota trial where oats was fed as the sole grain and in the Indiana trials where a mixture of oats and shelled corn was used, the lambs getting either oats or oats and corn, required more feed for 100 lbs. gain than those fed corn only. The Indiana trials show that in a ration properly balanced with legume roughage corn alone is as satisfactory for fattening lambs as a mixture of corn and oats.

In the South Dakota trial the lambs fed corn made larger and more economical gains than those fed oats. In the Indiana trials the lambs fed corn as the sole grain made slightly larger gains than those fed a mixture of oats and corn, and

required less feed per 100 lbs. gain. In starting lot II on feed, some oats was mixed with the corn during the first few days. These trials indicate that when lambs are on full feed, corn as the sole grain is as satisfactory as a mixture of corn and oats, when fed with legume hay.

In two trials at the Montana Station by Linfield lambs fed clover hay for roughage made nearly as large gains on oats as those fed barley, but required six per cent. more grain and 5 per cent. more hay for 100 lbs. gain.

SUCCULENT FEEDS.

VALUE.—One of the advantages of succulent feeds, so keenly relished by sheep, is their tonic and regulating effect. Roots are universally fed in large amounts to sheep in Great Britain, and to this fact may be attributed much of the reputation of the British shepherd for producing mutton of the highest quality. As is shown in the following articles, experiments in this country have proved that roots can be successfully replaced by corn silage, which is produced at lower cost in most sections of the United States.

ROOTS.—The value of roots for fattening lambs is shown in the following summary of five trials, averaging 113 days, in each of which one lot was fed roots in addition to an already excellent ration of grain (chiefly corn) and either alfalfa, clover, or mixed clover and timothy hay.

VALUE OF ROOTS FOR FATTENING LAMBS.

Average ration.	Initial weight.	Daily gain.	Feed per 100 lbs. gain.		
			Grain.	Roots.	Hay.
	lbs.	lbs.	lbs.	lbs.	lbs.
Roots—total of 41 lambs.					
Roots, 3.7 lbs., hay, 1.4 lbs., grain, 1.4 lbs.	81	0.39	374	940	358
No roots—total of 41 lambs.					
Hay, 1.7 lbs., grain, 1.5 lbs.	82	0.32	456	.....	525

In these trials the allowance of roots—mangels, sugar beets, rutabagas, or turnips—ranged from 1.9 to 5.0 lbs. per head daily, the average being 3.7 lbs. The lambs fed roots ate 0.1 lb. less grain and 0.3 lb. less hay per day but made 0.07 lb. larger daily gain. It is noteworthy that in each of the five trials the root-fed lambs made the larger gains. In these trials 100 lbs. of roots replaced 8.7 lbs. of grain and 17.7 lbs. of hay.

In trials at the Iowa Station by Kennedy, Robbins, and Kildee, sugar beets ranked first in amount and economy of gain, with mangels second, and turnips third. Since mangels and sugar beets when fed to sheep tend to produce calculi, or stones, in the kidneys or bladder, which are dangerous in the case of rams and wethers, these roots should not be fed to males for long periods. In the Iowa trials rams died after being fed on rations containing 4.4 lbs. of sugar beets or mangels for five to six months. Ewes are not so affected.

LESSONS FROM GREAT BRITAIN.—The value of succulent feed in the form of roots for sheep fattening is well shown in the compilation made by Ingle of the results of sheep-feeding trials reported in Great Britain from 1844 to 1905, num-

bering 194. From his extended report the following typical examples show the use British farmers make of roots in fattening sheep and lambs.

RATIONS USED BY BRITISH FARMERS IN FATTENING SHEEP AND LAMBS.

Average ration.	Initial daily weight.	Daily gain.	Total gain per head.
	lbs.	lbs.	lbs.
Oxford-Hampshire lambs, fed 87 days. Roots, 5.7 lbs., Kohlrabi, 11.2 lbs., clover hay, 0.38 lbs., linseed cake, 1.7 lbs....	117	0.48	43
Leicester-Blackfaced lambs, fed 105 days.. Swedes, 15.3 lbs., hay, 0.7 lb., no concentrates	80	0.21	22
Oxford lambs, fed 102 days. Swedes, 22.9 lbs., linseed cake, 0.3 lb., hay, 0.4 lb., barley, 0.3 lb.....	107	0.43	42
Cotswold yearlings, fed 121 days. Roots, 15 lbs., hay, 1.0 lb., cottonseed cake 1.6 lbs.....	111	0.33	41
Leicester-Blackfaced lambs, fed 63 days. Swedes, 19.3 lbs. dried dist, grains, 0.5 lb.	72	0.39	25
Leicester-Blackfaced lambs, fed 105 days. Swedes, 12.8 lbs., lnseed cake, 0.7 lb...	81	0.36	37

Not only is the large allowance of roots noteworthy, but also the almost universal use of oil cake—linseed or cottonseed. The gains reported in the first trial are surprising, considering that the only concentrate fed was 0.7 lb. linseed cake per head daily. In the second trial fair gains were secured on swedes and hay alone. In the last two trials the lambs fed no dry roughage, but only roots and dried distillers’ grains or linseed cake, made excellent daily gains.

Although these British trials show that large amounts of roots may be safely fed to sheep, it is not ordinarily profitable in this country to feed over 4 to 5 lbs. per head daily, and even half this allowance, preferably pulped or sliced, will furnish the needed succulence in the ration.

Owing to the low cost of producing corn silage, the possible substitution of this succulence for roots is a question of prime importance. The following table summarizes the results of seven trials, averaging 116 days, in which corn silage and roots (sugar beets, mangels, rutabagas, or turnips,) were compared, when fed with concentrates and legume or mixed hay:

CORN SILAGE VS. ROOTS FOR FATTENING LAMBS.

Average ration.	Initial weight.	Daily gain.	Feed for 100 lbs. gain.		
			Concen- trates.	Hay.	Succu- lence.
	lbs.	lbs.	lbs.	lbs.	lbs.
Silage—total of 72 lambs. Corn silage, 3.0 lbs, hay, 1.3 lbs., concentrates, 1.2 lbs.	89	0.30	396	439	1,040
Roots—total of 90 lambs. Roots, 4.6 lbs., hay, 1.5 lbs., concen- trates, 1.2 lbs.	89	0.32	380	471	1,507

The lambs fed silage made the same gains in two of the trials, larger gains in one, and somewhat smaller gains in the other four trials. On the average there was only 0.02 lb. difference in the daily gains of the lambs fed silage and roots. The silage-fed lambs required 16 lbs. more grain, but 32 lbs. less hay for 100 lbs. gain than those fed roots, the larger requirement of grain by the silage-fed lambs being offset by the larger consumption of hay by those fed roots. Thus, based on the feed required per 100 lbs. gain, 1,040 lbs. of silage replaced 1,507 lbs. of roots, due to the more watery nature of the roots.

CORN SILAGE.

Only in recent years has the value of corn silage for cheapening the cost of fattening sheep been appreciated. The following average of seven trials, lasting from 70 to 105 days, in which a ration of clover hay and shelled corn was compared with one of corn silage, clover hay, and shelled corn for fattening lambs shows the benefits from adding silage to an already excellent ration:

VALUE OF CORN SILAGE WHEN ADDED TO WELL-BALANCED RATION.

Average ration.	Initial weight.	Daily gain.	Feed per 100 lbs. gain.		
			Corn.	Hay.	Silage.
	lbs.	lbs.	lbs.	lbs.	lbs.
Lot I—total of 147 lambs.					
Corn silage, 1.4 lbs., clover hay, 0.9 lbs., shelled corn, 1.2 lbs.	62	0.326	360	284	425
Lot II—total of 147 lambs.					
Clover hay, 1.5 lbs., shelled corn, 1.3 lbs.	62	0.323	394	471	

On the average the lambs fed silage ate 0.6 lb. less hay and 0.1 lb. less corn daily yet gained slightly more than those fed clover hay and shelled corn. Adding silage to a ration of clover hay and corn does not, however, always result in increased gain, for in four of these trials the lambs fed no silage made the larger gains. The great advantage in feeding silage lies in the saving of corn and hay required for 100 lbs. of gain. In these trials 100 lbs. of corn silage saved 8.0 lbs. of corn and 44.0 lbs. of clover hay. With corn at a cent a pound and clover hay at \$10 per ton, the silage fed had a value of \$6.00 per ton, or nearly twice the cost of production on most farms. Besides cheapening the gains in these trials the addition of silage to the ration usually resulted in higher finish and consequently in a greater selling price.

Corn silage of good quality is as valuable for the breeding flock as for sheep being fattened for market. The numerous instances in which sheep of all classes have died from eating moldy or decayed silage show that greater care is necessary in administering this feed to sheep than to cattle. As sour silage is apt to cause colic and scouring, silage for sheep should be made from well-matured corn.

AMOUNT OF SILAGE TO FEED.

That corn silage should not ordinarily form the sole roughage for fattening lambs is shown by the following summary of two trials, averaging 95 days, conducted by Skinner and King at the Indiana Station. The table further gives the results for three trials, averaging 94 days, one by Skinner and King, and two by Coffey, in which the relative value of large and small allowances of corn silage were compared when fed with clover hay and shelled corn.

AMOUNT OF CORN SILAGE TO FEED FATTENING LAMBS.

Average Ration.	Initial weight.	Daily gain.	Feed for 100 lbs. gain.		
			Concentrates	Hay.	Silage.
Silage vs. silage and hay, two trials— Silage alone, 50 lambs.	bs.	lbs.	lbs.	lbs.	lbs.
Corn silage, 2.2 lbs., shelled corn, 1.0 lb., cottonseed meal. 0.14 lb.		0.26	431	.....	856
Silage and clover hay, 50 lambs— Clover hay, 1.1 lbs., corn silage, 1.6 lbs., shelled corn, 1.1 lbs., cotton seed meal, 0.16 lbs.		0.36	344	301	436
Large vs. small silage allowance, three trials— Silage in small amount, 57 lambs. Corn silage, 1.1 lbs., clover hay, 1.0 lb., shelled corn, 1.2 lbs.		0.31	379	332	360
Silage in large amount, 57 lambs— Corn silage, 1.7 lbs., clover hay, 0.8 lb., shelled corn, 1.2 lbs.	5	0.32	361	268	526

In each of two trials averages in the first portion of the table the lambs fed corn silage only for roughage made much smaller gains, had poorer appetites, and required more care to prevent going "off feed." Though in the first trial silage alone produced cheaper gains, the poorer finish of the lambs resulted in a sufficiently lower selling price to more than offset the cheaper gains. In the other trial gains were cheaper and profit greater when hay was fed in addition to silage. Contrary to their findings with steers, Skinner and King report that the appetite of lambs for dry roughage was not satisfied by supplying oat straw in addition to silage. They therefore conclude that for the best results legume hay should be fed with corn silage.

The second part of the table shows that the largest allowance of silage produced the most rapid, and, with feeds at the usual prices, the cheapest gains. Similar results were secured by Skinner and King in two trials in which large or small allowances of silage were compared when fed with clover hay, shelled corn, and cottonseed meal. In each trial as good or better finish was produced by the heavy silage feeding.

Skinner and King conclude that it is best to allow the lambs all the silage they will clean up both morning and evening, with free access to legume hay. It is interesting to note that the lambs given all the silage they would eat still consumed nearly one-half as much hay as they did silage, while on similar feeds steers eat five to seven times as much silage as hay.

SUPPLEMENTARY GRAZING CROPS.

More common than keeping sheep primarily on annual pastures is the growing practice of using various annual crops to supplement permanent pastures. The earliest grazing is usually furnished by the cereals, the best of which, according to Shaw, is winter rye. Rye is also grown for fall grazing and in sections with moderate winters, winter wheat furnishes feed during the colder months. The sorghums are useful in the plains region, although not especially relished by sheep. Where they flourish, field peas, vetches, cowpeas, and crimson and Japan clover all furnish excellent grazing. Rape is the most widely useful member of the mustard family, which furnishes several other grazing crops. In the mild climate of the Pacific coast, where it endures the winter, kale provides excellent spring feed. In the fall kohlrabi and cabbage may be useful. Both rutabagas and turnips are widely grown in Britain for grazing. Shaw suggests that these crops should be profitable for winter grazing in the Southern States.

Caution should be used in putting sheep onto clover or rape pasture, as both often cause bloat, which may prove fatal. When beginning to pasture these forages, the sheep should be allowed to graze but a short time the first day, and the period gradually increased till after a week they may remain continuously on the pasture. It is well to allow sheep to satisfy their hunger largely on other pasture or with hay or grain, before turning them on these crops. Even when care is taken, animals occasionally bloat, especially on sultry days following a rain. Immediate attention is then necessary to save the afflicted ones. Kleinheinz of the Wisconsin Station recommends a drench of a pint to a quart of milk warm from the cow. Others place a stick in the animal's mouth, tied back of the head with a string, or resort to the trocar or knife.

RAPE.

To determine the value of rape for lambs Shaw at the Ontario Agricultural College confined three lots of 71-lb. lambs each to a measured acre of rape by means of hurdles. Lot II was fed oats in addition and Lot III had the run of an adjoining grass pasture. Each acre of rape lasted 15 lambs grazing thereon 58 days, during which time the gains were as indicated.

RETURNS FROM RAPE GRAZED BY FATTENING LAMBS.

	Daily gain.	Gain per acre.
Lot I, Rape only	0.39 lbs.	344 lbs.
Lot II, Rape and 0.5 lb. oats per head daily	0.40 "	348 "
Lot III, Rape and grass pasture adjoining	0.47 "	420 "

The addition of oats did not prove economical, while the value and importance of grass pasture in supplementing rape is strongly brought out by the larger gains of Lot III. From 344 to 420 lbs. of gain was made per acre of rape by these lambs. Shaw concludes that feeding grain to lambs grazing on rape will not pay when bluegrass pasture is available. The economy of feeding grain when no pasture is available will turn on the relative abundance of rape and the cost of grain, as the feeding of grain should decrease the amount of rape eaten.

RAPE VS. BLUEGRASS.

At the Wisconsin Station Craig grazed one lot of 48 lambs on a bluegrass pasture and another on rape for four weeks, feeding in addition 0.7 lb. daily per head of a mixture of equal parts of peas and corn. During this period the first lot consumed the rape on 0.64 acre. Both lots were then placed in pens and fed an unlimited allowance of hay and an increased grain allowance, as shown in the table.

RELATIVE VALUE OF RAPE AND BLUEGRASS PASTURE FOR LAMBS.

Pasture period of 4 weeks.		Pen period of 12 weeks.			
Average ration.	Daily gain.	Average ration.	Daily gain.	Feed for 100 lbs. gain.	
				Grain.	Hay.
I. Rape ; grain, 0.7 lb	0.37 lbs.	Grain, 1 lb. ; hay, 0.6 lb. . .	0.24 lbs.	429 lbs.	261 lbs.
II. Bluegrass, grain, 0.7 lb. . . .	0.24 "	Grain, 1 lb. ; hay. 0.7 lb. . .	0.22 "	476 "	315 "

The table shows that the lambs pastured on rape did much better than those on bluegrass, both while on pasture and later when confined to feeding pens.

WATER.

Opinions as to the amount of water necessary for sheep vary more than with any other domestic animal. In countries with heavy dews and ample succulent feed in summer, and where roots are largely used in winter, water may possibly be denied sheep, but ordinarily it is a necessity. Because of danger of infestation with internal parasites, drinking from stagnant pools must be avoided. On the arid ranges of the Southwest, when grazing on certain succulent plants, like singed cacti, sheep sometimes go sixty days without water. The wise shepherd will under all usual conditions see that his sheep are supplied with water daily.

A sheep needs from 1 to 6 quarts of water daily, according to feed, temperature, and weather. Ewes suckling lambs, and sheep that are being fattened require more water than those being simply carried through the winter. The following table presents data gathered at the Michigan and Colorado Stations on the amount of water consumed by fattening lambs, averaging about 80 lbs. at the beginning of the trials.

WATER DRUNK BY LAMBS ON VARIOUS RATIONS DURING FATTENING.

Rations.	Average daily gain.	Water drunk daily.	Water drunk per 100 lbs. gain.	Number of trials.
Michigan—	lbs.	lbs.	lbs.	
Grain and clover-hay, open yard feeding..	0.22	1.4	599	1
Grain and clover hay.....	0.28	2.8	979	8
Grain, roots and clover hay.....	0.36	1.9	540	3
Clover hay and sugar beets.....	0.13	0.3	314	1
Colorado—				
Grain and alfalfa hay (cold water)	0.36	5.1	1,423	2
Grain and alfalfa hay (warm water)	0.36	5.3	1,514	2

Adding roots to the ration greatly decreased the water requirement, the lambs fed clover hay and unlimited sugar beets drinking only 0.3 lb. each daily. Lambs fed in an open yard required less water than those in confinement, due probably to the lower temperature outside. Supplying lambs fattening on alfalfa hay and grain with warm instead of cold water made no difference either in the quantity of water drunk or in the rate and economy of the gains produced.

Gray and Ridgeway of the Alabama station found that in late summer ewes in confinement drank 2.5 lbs. of water each while living on green sorghum forage, and 6.1 lbs. when on cottonseed meal and hulls.

SALT.

Sheep require salt, which should be available at all times, for an irregular supply induces scouring. In winter it may be given in a trough used only for this purpose. In summer salt may be rendered doubly useful by scattering it on sprouts growing about stumps, on brush patches, or over noxious weeds. Some western sheep raisers never salt their sheep, but allow them to eat alkali, which is safe when it contains 80 per cent. salt. It is believed that salted sheep are less liable to become locoed.

In an experiment in France in which three lots of sheep were fed the same ration of hay, straw, potatoes, and beans, those receiving a daily allowance of 0.5 oz. of salt with their feed gained 4.5 lbs. more per head than those fed no salt, and 1.25 lbs. more than those fed 0.75 oz. per head daily. This indicates that sheep may be given too much as well as too little salt. The fleeces of the salt-fed sheep were better and heavier than those fed no salt.

RATIONS.

(From Bulletin No. 50, Macdonald College, Que.).

The following rations are recommended for sheep feeding:

1. *Early winter rations for breeding ewes:*

1. 3 to 6 lbs. of clover or alfalfa hay.
4 to 6 lbs. of swedes.

Note—1 to 2 lbs. of silage may be substituted for swedes.

2. 2 to 4 lbs. of mixed hay.
1 to 2 lbs. of pea, bean or oat straw.
 $\frac{1}{4}$ to $\frac{1}{2}$ lb. of oats and bran, in proportion of 2 of oats and 1 of bran.

2. *Late winter rations for breeding ewes:*

1. 3 to 6 lbs. of clover or alfalfa hay.
1 to 2 lbs. of swedes.
 $\frac{1}{4}$ to $\frac{1}{2}$ lb. of oats and bran.
(2 pts. oats to 1 pt. bran.)
2. 2 to 4 lbs. of mixed hay.
1 to 2 lbs. of pea, bean or oat straw.
 $\frac{1}{4}$ to 1 lb. of oats and bran.
(2 pts. oats to 1 pt. bran.)

3. *Rations for ewes after lambing:*

1. 3 to 6 lbs. of clover or alfalfa hay.
4 to 6 lbs. of mangels or swedes.
 $\frac{3}{4}$ to 1 $\frac{1}{2}$ lbs. oats and bran.
(2 pts. oats, 1 pt. bran.)
 $\frac{1}{4}$ to $\frac{1}{2}$ lb. oil cake.
2. 3 to 6 lbs. mixed hay.
 $\frac{3}{4}$ to 2 lbs. of oats, brewers' grains and bran (1 pt. each).
 $\frac{1}{4}$ to $\frac{1}{2}$ lb. oil cake.

4. *Rations for young lambs:*

Clover and alfalfa leaves.
 Rolled oats, 2 pts.
 Bran, 2 pts. (all they will eat).
 Oil cake, 1 pt.

5. *Rations for fattening lambs, 70 to 110 lbs. weights:*

1 to 2 lbs. clover or alfalfa hay.
 2 to 4 lbs. swedes.
 $\frac{3}{4}$ to 1 $\frac{1}{2}$ lbs. grain ration.

Grain ration made up as follows:

1 pt. corn.		1 pt. corn.
1 pt. bran	or	1 pt. barley.
2 pts. oats		2 pts. oats.
		1 pt. bran.

CARE AND MANAGEMENT OF THE FLOCK.

CARE OF THE PREGNANT EWE.

(From Pamphlet No. 5, Live Stock Branch, Ottawa.)

Care of lambs should begin before they are born. The ewes, during the breeding season, should be placed upon as good pasture as can be afforded and, if necessary, some supplementary soiling fodder be provided. When they are brought into winter quarters, they should be changed gradually from pasture conditions to dry rations, and throughout the winter some feed of a succulent nature should always be supplied them. Roots and silage can be given to excellent purpose in this regard. Neither, however, should be fed extravagantly, for over-feeding is prone to cause the production of flabby, goitered lambs and sometimes abortion. Silage may be given at the rate of from two to three pounds per day, and roots, three to four pounds. A good quality of hay, preferably alfalfa or clover, and some grain should be provided. After the breeding season the ram should no longer be kept with the ewes. He will thrive much better apart, and danger of his butting the ewes, thereby possibly injuring the foetus or unborn lamb, will be prevented. Narrow doorways should be avoided, for ewes, if frightened, are liable to become wedged in the opening with dangerous results to the foetus. Moderate exercise is also absolutely necessary for the proper maintenance of the ewe's health. In fact, every care should be taken to promote and sustain the vigor and strength of the ewe, for her energy is imparted to the foetus and its strength is directly in proportion to that of its mother.

FEEDING THE LAMBS.

Lambs should be taught to eat as soon as possible after birth. Even when a few days old they will commence nibbling, and when they are two weeks of age should be eating fairly regularly. A separate compartment should be provided wherein they can be fed without molestation by the ewes. To effect this, a lamb creep can be readily constructed by means of two wooden rollers revolving around iron pins placed in a hurdle a sufficient distance apart to allow only the lambs to go through. The rollers are better than stationary slats, since rubbing and consequent wearing of the wool from the lambs' sides are minimized. A good quality

of hay, preferably alfalfa or clover, should be provided in small racks within reach of the lambs. Grain and some succulent feed, as cabbage or turnips, should be fed twice a day in amounts consistent with their appetites. The lambs should be fed all they will eat of a palatable and nutritious ration, so as to keep them in thriving condition and avoid serious checks in growth.

WOOL BALLS IN THE STOMACH.

Wool ball in the stomach is one of the most dreaded diseases to which lambs are heir. Many lambs every year are killed from this cause, and the average breeder does not know what is the matter with them. Wool, taken with the feed into the stomach, will collect at the intestinal openings, preventing proper passage of the digested material, and at times completely closing the orifice. In all cases it results in malnutrition and ill health which may subsequently lead to death. The disease can be avoided by clipping, from the ewe's flanks and around the udder, all stray locks and tags of wool, so that the lamb cannot mistake a strand of wool for the teat. Also dip the lambs, if they are infested with ticks. The presence of this pest will so annoy the lambs as to cause them to bite themselves, and in so doing they may obtain a mouthful of wool. A purgative, as castor oil, represents the only practicable remedy.

NAVEL ILL.

There are a few other diseases that may attack lambs, as navel ill, white scours and constipation, but the practice of careful feeding and strict sanitation in the buildings will easily suppress these. Navel ill can better be prevented than cured. It is caused by manure and filth coming in contact with the umbilical cord before it has completely dried and withered up. Therefore, preventive measures should comprise the maintenance of the utmost cleanliness in the barns. Should infection occur, the navel will become discoloured and greatly swollen. If the swelling extends up the belly, the animal will most probably succumb. The diseased part should be carefully opened and cleansed with a five per cent. solution of carbolic acid or some equally good disinfectant and subsequently covered with powdered blue stone which will tend to dry the wound.

WHITE SCOURS.

White scours are due to a derangement of the digestive system. The milk does not pass properly into assimilation but becomes curdled and soured in the lamb's stomach. Ill health of the dam may be responsible for producing milk containing injurious qualities or it may be created by feeding a heavy grain ration. Rich grains, as peas or corn, are especially prone to cause this disorder. The following treatment will be found beneficial: baking soda, one-quarter ounce; magnesium sulphate, one ounce; ginger, one ounce. This should be administered in a little linseed gruel. Four hours afterwards give two ounces of linseed oil. The first remedy will tend to dissolve the curdled material, and the second will remove it from the stomach. If it is thought that the trouble is with the milk, the dam should be provided with a plentiful supply of succulent feeds, as turnips, mangels or cabbage, which are most helpful correctives in promoting health and vigor.

A FEW POINTS UPON THE CARE OF THE FLOCK.

R. H. HARDING, THORNDALE.

The lambs at weaning time in August should be provided with a fresh pasture, either of clover or rape, where they will soon forget their mothers and will make gains rapidly.

The ewe flock should be kept upon scant pasture for a couple of weeks after the lambs are weaned in order to thoroughly dry them up. They should also be examined and milked out as necessity requires. After the flock has thoroughly dried up, they should be placed where they will gradually put on flesh and thereby build up the system, after nursing their offspring. With a system of general thrift in the breeding flock, the crop of lambs should be better the following year and should also arrive within a shorter season of each other. The most satisfactory crop to supplement pasture (for flushing) is rape, a feed that is liable to cause bloat occasionally, but, if started cautiously and not fed to any extent while wet or frosty during the first week, there will be very little danger afterwards.

CULLING OUT.—Aged ewes or any that do not prove to be satisfactory mothers should be culled out and sent to slaughter. A ewe has reached her best at three years old. After she has passed four years old she produces less wool each year. Then why keep her? The plan in Britain is to market the four-year-old ewe as mutton and keep the best ewe lambs to replenish the flock, thereby keeping the flock prime and the wool up to the maximum. The world at large goes to Britain for their foundation stock. Why not follow her example? Certainly the broken toothed ewe should not be wintered over excepting in very exceptional cases. Ewes not up to the standard desired in general type should also be discarded. It should be needless to say that good pure bred rams should be used in grading up a flock and the breed of your choice should be used year after year instead of changing breeds.

As mating season approaches, the ewes should be thriving and they should be trimmed of all dung locks. The ram should also be in a healthy, vigorous condition, but not over fat. When using a show ram that has been in high flesh, he should be kept, previously to mating, where he will take considerable exercise to make him active. At the same time he should be fed a few whole oats regularly to keep him strong and ambitious. If the ram has thirty-five or more ewes to serve, he should be kept inside where he can get his grain regularly, letting him out with them at night, or, what will be much easier on the ram is to bring the ewes in each night. Salting at the yard will usually cause them to come in of their own accord. When the ram is first put with the flock, he should be painted on the lower part of the brisket with some colouring substance such as ochre or lampblack or umber mixed with grease or linseed oil into a paste. With this colouring the ram marks each ewe bred, enabling anyone who is not too busy to keep a fairly accurate record of when his ewes are likely to lamb, as ewes that fail to conceive will return in about eighteen days. It is advisable to paint the ram as before at about sixteen days, but with another colour, which will enable the owner to detect whether the ram is going to be successful or not. Large amounts of money are lost by simply turning the ram with the flock and trusting to luck. If more than one ram is kept, it is well to change them around, working but one at a time. Never let more than one ram out with the flock at once. If the flock is thrifty and the ram is vigorous and sure, the flock should all get with lamb within three weeks time, but to make

sure of all of them, it is well to leave the ram and ewes together for eight weeks, after which the ram should be removed from the breeding flock for the winter unless he is especially quiet. A well developed ram lamb should be sufficient for 25 to 30 ewes, but an older ram that has not been overtaxed or over fed is preferred and will serve 50 or 60 ewes. A sire that has proven himself a valuable stock getter should be kept as long as he can be used without inbreeding. Generally speaking, ewe lambs should not be bred as it reduces their size as well as the amount of wool that they will produce. As soon as the flock goes into winter quarters ways and means of taking daily exercise should be provided. A good plan is to feed them their noon meal some little distance from their pens, to which they will go several times every day. The ewe flock without any out-door exercise is very likely to produce big, fat, weak lambs that give no end of trouble.

CASTRATION AND DOCKING.

(From Pamphlet No. 9, Live Stock Branch, Ottawa.)

One prominent writer on agricultural topics has characterized the failure to castrate male lambs as "the great neglect" in sheep husbandry. There is no doubt that this negligence has been a decided drawback to the progress of the sheep industry in Canada. Farmers who are engaged in raising horses do not for one moment contemplate leaving all male offspring entire. Nor do cattlemen forget to castrate bull calves, unless they are intended for breeding purposes. Hog raisers have realized that it is necessary to unsex their grade boars and some even deprive the females of their ovaries, in order to insure the best gains in weight. There is no justifiable reason why sheep raisers should be so careless in this regard. Nevertheless, cold facts demonstrate that, unfortunately, emasculation of grade rams is not practised to the extent it should be. Why castration should be neglected in this class of live stock is difficult to understand. Probably the greater docility of the ram compared with the bull or stallion may afford an explanation. The ram will not break down fences as will the stallion, nor gore attendants to death as the bull. Dire calamities always impress people. It should not be necessary, however, for deaths to occur before warnings are heeded. Fortunately for mankind, rams are not so ferocious as bulls. If they were, imagine the continual danger which would be the result of the number of entire rams which are to be found in every district where sheep are raised.

Docking is also neglected to fully as great a degree as castration. Both sexes should be docked. The main argument against the docking of horses is that the natural means of fly protection is destroyed. In the case of sheep, this argument cannot be raised, because the tail is so heavy as to prevent switching and, moreover, the heavy covering of wool, which the flies cannot penetrate, makes it unnecessary. On the other hand, the presence of a tail induces the collection of manure, in which maggots may develop.

REASONS FOR CASTRATION.

1. Unsexed lambs are more easily cared for than rams in the field, since they are not so restless and, consequently, do not require as strong fences.

2. Wethers grow and fatten more quickly than rams. Lambs for the fall market are disposed of shortly after weaning and should be in good condition at that time. Where emasculation has been neglected they may, however, not be fit for the shambles. At about three or four months old the lamb realizes his mascu-

linity and proceeds to worry the females in his company and, when separated from them, the males will jump upon one another, paying very little attention to feeding. These lambs should be fattening, but reality shows that the reverse is the case and what is known as the baby fat is lost. A check in growth takes place and it is impossible to hasten the fattening process or obtain the desired state of bloom, unless heavy grain feeding is practised. This means a financial loss either owing to the greater amount of grain which must be fed or to the reduction in price which results from an unfinished condition. Experiment has shown that wethers make 11 per cent. more gains in weight under similar conditions than do ram lambs. The negligent sheep raiser does, therefore, pay a severe penalty.

3. Drovers will not pay as much for ram lambs as for wethers. Some markets will accept rams only at a reduced price. The reduction made in this respect by the Live Stock Exchange of Toronto is seventy-five cents per head upon all males.

4. Unsterilized lambs may get into the ewe flock. Sometimes mating takes place, which may be undesirable and productive of heavy financial losses.

5. Castration of males intended for the butcher is a very apparent sign of good shepherding and lambs from a well-managed flock find a ready market, even in times of a temporary market depression.

6. Winter feeding for mutton purposes can be undertaken more successfully with wethers than with rams.

METHODS OF CASTRATION.

Liability to injury or death is the lame excuse which some men put forward when asked why they do not sterilize their male lambs. There is very little risk, however, if the operation is performed at the proper time and attention is paid to the maintenance of sanitary conditions. Castration can best be performed when the lamb is about ten days or two weeks old. At this time a minimum amount of pain is caused. Aged rams, even five or six years old, may be deprived of their testicles with safety, if the operation is performed in a careful manner. An effective disinfectant should be used in all cases. The hands and knife should be sterilized and a little antiseptic placed on the wound, thereby preventing the possibility of infection. Clean pens with repeated renewals of fresh straw are required. If castration takes place when blow-flies are abundant, precautions should be taken to prevent their interference with the wound. This may be done with disinfectant or a little covering of tar. Many shepherds always smear the opening of the scrotum with an ointment of lard and turpentine mixed to the consistency of a soft paste. Any method which will prohibit the ravages of the fly and hasten healing is sufficient.

One of the most common and undoubtedly the oldest form of castration is where one-third of the scrotum is cut off and the testicles drawn out by the teeth of the operator. In this way the operation is performed quickly. Some object to this method, because they deem it filthy, yet many of them undoubtedly relish "lamb's fry." There may be, on the other hand, some grounds for objection through the entrance from the mouth of bacteria into the wound. Removal of the testicles may be effected by drawing them with the finger and thumb, but there is more danger of bursting the testicles in this procedure than where the removal is made with the teeth. A small pair of pincers can also be used for this purpose. It is better to draw out the spermatic cord which is attached to the testicle rather than cut it with a knife.

In castrating old rams, the entire scrotum and its contents are removed by severing it near the body. Hot pincers which sear the severed arteries and thus pre-

vent bleeding are used in such cases. There are some who use this method in castrating lambs. An instrument especially designated for sterilizing, known as an emasculator, is employed for this purpose. In using it, the testicles are pressed upward and the lower portion of the scrotum cut off. The cords in this operation are completely severed. Swelling may follow but may be reduced by bathing with a warm disinfecting solution.

Show wethers should have a full "purse" or scrotum. If the entrance is made from the side the size of the scrotum is not diminished. Care must be taken that the opening is near the lower end so as to provide good drainage and prevent the collection of pus. The testicles are removed by the use of emasculators which cut through the spermatic cord.

REASONS FOR DOCKING.

Manure collects on a long tail very readily and may become a prolific breeding place for maggots. In small lambs whose digestive tracts are unsettled manure sometimes cakes to such an extent around the tails that defecation is impossible and death results.

2. The tail is useless and the blood which promotes its growth can be better utilized elsewhere.

3. Docking is an evidence of careful shepherding. Buyers leave the neglected flocks untouched until the last.

4. In the case of ewes a long tail is sometimes an obstruction in the act of copulation.

5. Docking adds greatly to the appearance of a sheep.

METHODS OF DOCKING.

Docking, carefully performed, is seldom followed by bad results. True, a little bleeding may occur when a knife is used, but it does not usually attain dangerous or serious proportions. Generally a lamb when released after docking will run to its mother and commence sucking. This shows that the operation is by no means severe. Bleeding may be prevented by searing the end of the tail, or where the knife is used, by tying twine, which may be removed eight or ten hours after the operation, tightly around the tail above the wound. The most favourable age for docking is, in the instance of ewes, at ten to fourteen days old and, with rams, five to seven days after castration. Castration and docking may be done at the same time, but it is better in the case of small flocks to have an interval between the two operations. The tail should be severed at the third joint of the vertebrae. Docking should be performed in the morning, so that excessive bleeding will be detected and remedied before night.

There are two methods of docking, firstly, by using a knife, and secondly, by the aid of pincers. The first method consists of placing the lamb between the operator's legs, its rear end in front of him, and of simply cutting through the tail from the underside at the desired joint with an ordinary heavy jack-knife. The joint can be found by feeling on the underside of the tail. The skin on the underside of the tail should be drawn up toward the body of the lamb, so that when the tail is severed it comes down over the end of the joint, which induces coagulation of the blood and facilitates healing. A little disinfectant on the wound assists the healing and

prevents infection. The tail may be placed on a board and severed by means of a chisel and mallet, but the knife is more accurate and is not so liable to bruise the tail bones. In the second method, the operator requires an assistant and a pair of iron pincers are used. They are heated in a fire and the operation is performed while they are hot, thereby searing the wound which prevents bleeding. However, pus not infrequently collects underneath the scab which forms, and the suppuration which ensues may cause an aftermath of greater pain to the lamb than the sharp, clean cut of a knife. Of course, danger of infection is more liable from a knife wound, yet when clean bedding and strict sanitary measures are employed this will, to a very great extent, be obviated.

DIPPING THE FLOCK.

Frank Kleinheintz in his book, "Sheep Management," says:

"I do not understand why dipping is neglected by some sheep owners. It is impossible for sheep to make any progress when they are covered with ticks and lice which annoy them day and night. When sheep are infested with these pests they have no rest at all. They are kept busy biting their wool and scratching continuously and seeking every sharp corner or post to rub against in fighting the insects.

"It is difficult to estimate how much feed is wasted and how much flesh is lost when ticks or lice are present in a flock. It is certain, however, that a great portion of the feed consumed by the sheep helps to support these pests. They suck much blood out of the sheep, and this blood which the sheep needs for its maintenance must be restored through the feed which should be used by the sheep for its growth and development. Therefore, it is very unwise to let sheep suffer from such pests through failure to dip them at least once a year."

THE DIPPING TANK.

Galvanized steel tanks may be purchased from various supply houses at reasonable cost, or they may be constructed of concrete to form a more permanent fixture. A good dipping tank should be at least ten feet long at the top and four feet at the bottom, with one end perpendicular and the other sloping at an angle of about 35 degrees. The width should be two feet at the top and only eight inches at the bottom, both sides sloping correspondingly. The tank should be at least three and one-half feet deep. The sloping end should be cleated on the inner surface, which forms a stairway by which the sheep can climb from the vat.

To economize on the amount of dipping material required, especially where the flock is a large one, it is advisable to construct a dripping pen, connected with the tank at the sloping end, so that the sheep climbs directly into it from the vat. The floor of this dripping pen should be made so that it will collect the material as it drips from the sheep and convey it back into the vat. The sides and end of this pen may be made similar to a farm gate, and it will be an advantage to have them removable.

A bright sunny day should be chosen for dipping. This will afford the sheep an opportunity to dry off perfectly and avoid colds, chills, or other troubles.

DIPPING IN GREAT BRITAIN.

(From the Report of Commissioners on "The Sheep Industry of Canada, Great Britain and United States," 1911.)

Dipping is compulsory by law at least twice each year and is practised at other times as well where benefit to the general health and comfort of the sheep may result. Special enactments also provide for the suppression of outbreaks of scab and other very infectious diseases. All regulations are carried out under the supervision of the local authorities. Forms of application for dipping are supplied the farmers and must be filled out, signed and returned to the local police. The organization for the carrying out of all such regulations is so perfect that even if any person would try to escape the law or perform any fraudulent practices whatever, he is at once detected and punished accordingly.

The dates for compulsory dipping vary somewhat according to the variation in the climate and are divided into two periods. In the north of Ireland and Scotland the first takes place between January and the first of August, and the second between the first of September and the first of November. In England the dates are thirty days in advance. It is customary to dip the first time about a month after shearing or up to the end of June.

Dipping preparations are divided into two classes, poisonous and non-poisonous; the first containing arsenic and sulphur, while the latter are made from a carbolic standard. The poisonous dips destroy the eggs as well as the vermin, while the non-poisonous are quick in action but merely destroy the parasite. The arsenical dips have a tendency to open up the fleece and the pores of the skin, while carbolic dips have the opposite effect, which is greater or less according to the formula used in their manufacture. Thus we find, especially in the hill districts or where sheep are subject to continued exposure, that the first mentioned is used more largely as a summer dip and the latter as a winter dip. A good winter dip has a tendency to partially waterproof the fleece and thus afford much protection during the cold, wet months of the winter season. An addition of a mixture of mineral oil and whale oil is commonly used with these dips for that purpose. It is claimed for this mixture that it serves the double purpose of waterproofing the fleece and stimulating the growth of the wool.

Dipping, under any condition, unless properly done, might as well be left undone, and it is very important when using prepared dips to follow carefully the directions as indicated by the manufacturers. Owing to carelessness by a few users in this regard, some makers, in order to protect themselves have found it advisable to direct the use of their preparations, rather under strength than up to the regular standard.

Several different types of dipping appliances are in use but the most generally adopted system is by means of the swimming bath. This is so constructed that the entrance end is perpendicular and the other sloping to allow the sheep to walk out into an enclosure provided as a dripping pen. The tank or vat is lowered into a hole in the ground and is usually about five feet deep and from eight to ten feet long on the bottom. Two dripping pens are provided in use alternately and draining back into the bath, while the other is receiving those freshly dipped. Adjoining the two dripping pens is a drying pen, connected with a gate, as it is not considered wise to turn the sheep immediately on the pasture until the outside of the fleece is comparatively dry. In the smaller baths the sheep are dropped in rump first, completely immersed and then allowed to swim to the other end where they

walk into the dripping pen. When the large sized baths are used, the sheep are allowed to leap in and swim to the other end, and walk up the slope into the dripping pen in the same way. Some active light swimmers keep well up and partially out of the dip, while others very heavy and in full fleece, have difficulty in keeping their heads above water. A simple crook made similar to the letter T, the cross being similar to the letter S, is used for pushing down or holding up as the case may be. Another dipping arrangement that we saw in operation is a patent device, called a "cage-dipper." The entire machine is made of metal, and, although possessing considerable mechanism, is strong, easy to operate and quite automatic. The operators may dip very rapidly without any necessity of becoming wet, much less getting soaked to the skin, and it serves very well for dipping heavy sheep or in-lamb ewes, by avoiding undue handling and rough usage. The vat is placed below the surface of the ground and a cage containing the sheep is lowered into the bath and raised out again by the turning of a hand crank. As the cage rises up a gate at the front end is opened automatically, allowing the sheep to jump out into the dripping pen. Close by is a barrel or tank containing fresh dip, which is kept thoroughly mixed by a plunger attached to the cage, rising and falling as immersion proceeds. Although the smartest and best dipping device we have seen, it is unfortunately too expensive for small farmers. Farmers who possess large flocks of sheep can easily afford the initial outlay of the "Cage-Dipping" plant, and they will find it convenient in every respect and at the same time a great labor saver.

DIPPING PERIODS.

<i>England—</i>	
General dipping order	14th July to Sept. 1st.
<i>North Wales—</i>	
1st dipping	1st June to Aug. 31st.
2nd dipping	1st Sept. to Nov. 30th.
<i>South Wales—</i>	
	14th July to Sept. 1st.
<i>Scotland and North of England—</i>	
1st dipping	1st Jan. to Aug. 31st.
2nd dipping	1st Sept. to Nov. 12th.
<i>Ireland—</i>	
1st dipping	15th June, to Aug. 31st.
2nd dipping	1st Sept. to Nov. 15th.

DISEASES OF SHEEP.

DR. J. G. RUTHERFORD.

Stomach Worms: The stomach worms, of which there are several varieties, are generally somewhat under an inch long and live in the fourth stomach. Lambs suffer particularly from their attacks, which begin any time after the little fellows start to eat grass, and may continue even till cold weather comes. Some of the symptoms in lambs and sheep are loss of flesh, dullness, languor, failing appetite, thirst, occasional colics, black diarrhœa, dry wool, chalky skin, and a general anæmic condition. Lambs and weak sheep are especially afflicted by these pests, which frequently cause death, while strong, healthy sheep, though infected, may show but little evidence of the fact.

The worms in the stomach produce eggs, too small to be seen by the naked eye. These pass out of the animal in the droppings and hatch in a temperature of 40 degrees Fahrenheit or over. They will be found in muddy stagnant water. They

will not develop in pure water, and when deposited there, generally die in the course of a few weeks. These little worms grow until they are about one-thirtieth of an inch in length. After being swallowed by a sheep or lamb they arrive at maturity in three weeks or a month.

Good management seems to be the best remedy for these pests. Keeping the digestive organs in a healthy condition by the use of roots in winter and vetches, rape or other succulent plants in summer, along with other foods, seems to be a preventive. A liberal allowance of salt should be furnished regularly. In infested districts the pasture should be hurdled off and the sheep kept on one plot for about ten days and then moved to the next. This should be done from June to October. This method keeps the sheep from feeding over infested pastures, preventing re-infection, as at least two weeks are required for the eggs to hatch. Pastures known to be infected should either be ploughed up or thoroughly dressed with lime and salt.

Many remedies have been tried with more or less success. Gasoline, coal-tar, lysol, creosote, kamala and bluestone (copper sulphate) are used. Possibly the last named is surest to reach the fourth stomach of the animal, which the parasites mostly inhabit. This treatment has been used successfully in Cape Colony, and is recommended by the authorities there. The bluestone should be pure and clear blue in color. Dissolve two ounces of finely powdered bluestone in one gallon of warm water, or better, dissolve it in a quart of boiling water, then add the remainder and mix. The doses are as follows: Lambs three months old, 1 ounce of the solution. Lambs six months old, $1\frac{1}{2}$ ounces of the solution. Sheep twelve months old $2\frac{1}{2}$ ounces of the solution. Sheep eighteen months old 3 ounces of the solution. Sheep twenty-four months old $3\frac{1}{2}$ ounces of the solution.

Care should be taken to give the right amount according to the age of the sheep. When kamala is used it should be given once a day in doses from half a drachm to a drachm in thick gruel, treacle or raw linseed oil. Picrate of potash, which is highly recommended by continental authorities, is administered daily in doses of from 5 to 20 grains according to age and weight. It is said to be less irritating than any of the other remedies mentioned. Except in one or two localities Canadian sheepmen have not suffered to any extent from the ravages of this pest.

The Grub Worm: The grub worm is found in the sinuses of the sheep's head. It is the offspring of the sheep gadfly. The eggs are deposited in the sheep's nostrils and when hatched the worms crawl up into the sinuses and become full grown grubs.

Prevention is undoubtedly better than treatment, although skilful shepherds are often able to relieve the sheep of their unwelcome guests by trephining the sinuses. Feed well and keep the sheep strong and healthy. Tar or fish oil smeared on the noses of the sheep or placed on the edge of narrow salt troughs or around 2-inch auger holes in a log, in which salt is fed, will help to keep the flies away. A dark place during the midday heat lessens the attacks of these insects. Access to a piece of summer fallow where the sheep can stamp and raise a dust also helps to discourage the tormentors. During the months of July, August and September sheep should, if at all possible, be kept on pastures free from trees or shrubbery of any kind.

Tapeworm: The sheep is known to harbor more varieties of tapeworm than any other of our domestic animals save the dog. Eight species are found, of which, however, by far the most common in America is that known as the *Toenia expansa*.

This tapeworm varies in length from three to six yards, and from one-twenty-fifth of an inch in width at the head to one-half inch at the tail. It is composed of segments, dull yellowish-white in color, and about one-fourth of an inch in length and a little more in breadth, any one of which if picked up by another animal may grow into a mature tapeworm. Sheep suffering from tapeworm first show paleness of the skin and mucous membrane, accompanied by brittleness of the wool and rapid loss of condition, although the appetite may continue good or even excessive. This is followed by digestive disturbances, irregular cold and offensive breath, bloating, constipation or diarrhœa, the fæces being yellowish in color and often containing segments of the worm. The sufferer becomes more and more feeble, and unless prompt relief is afforded death soon follows, usually preceded by convulsions and violent diarrhœa. Fortunately tapeworm is not very difficult to eradicate. The sheep should be fasted for from twelve to twenty-four hours. An injection of warm water given a few minutes before will help to promote the rapid action of the medicine. The dose, *1 drachm of the oil of male shield fern in from 2 to 3 ounces of castor oil* for a mature sheep, is best given when the sheep is standing and after a fast of twenty-four hours, as then most of the dose passes to the fourth stomach. Kamala in doses of from 1 to 1½ drachms in thick gruel or treacle, followed after three hours by from 3 to 4 ounces of castor oil is also often effective. For small lambs one-fourth of these doses is sufficient, and as the size and age increases the dose may be given to suit. In drenching sheep the mouth should not be raised above the level of the eyes, lest part of the dose pass into the lungs. After being treated sheep should be shut up for at least thirty hours to prevent the segments of the worm expelled being scattered, and much ground being infected. Subsequently they should be put on fresh ground in order to avoid the risk of re-infection. Tapeworm is most common in wet years and in wet, muddy districts, and although the life history of the parasite is not fully known, it is probable that it finds direct access to the sheep in its larval or cystic form of being taken up with the grass. Infected pastures should, therefore, be burned over, ploughed up if possible or topdressed with salt, nitrate of soda or gaslime. Droppings should, when practicable, be collected and carefully burned.

LIVER ROT.

(From "Diseases of Sheep," by Wm. Cooper and Nephews.)

A deadly disease, caused by the presence of the mature form of the liver fluke (*distoma hepaticum*) in the liver and bile passages.

A scourge on many farms in marshy, ill-drained districts.

The adult fluke is about an inch long, and half that in width, brownish in color and flat. It subsists on the blood of the sheep, causing a chronic inflammation, which alters the liver structure so as to deprive it of its proper functions. The eggs are expelled into the bile ducts, thence into the intestines and are ejected in the droppings.

When they reach water they are hatched, and the young flukes seek their next host, a small water snail. They burrow into its body, in which they undergo two transformations, after which they escape into the water and attach themselves to blades of grasses and water plants, from which, in due course, they are picked up by the sheep in grazing, and find their way to the liver, where they mature.

SYMPTOMS.—At first the sheep experience little inconvenience, but as the flukes grow the irritation they set up causes an increased flow of bile, and for a time the sheep fatten rapidly, which fact the experienced sheep owner should regard with suspicion.

The mucous membranes of the eyes, etc., at the first stage are pale, but later become yellow. Three months after infection the yellowness disappears, and the eyes look pale and watery. The animals are listless, the wool harsh, dry and falling off.

Abortion occurs amongst the ewes. Dropsical swellings appear under the jaws, and diarrhoea sets in. Animals most frequently die in this stage, which lasts about three weeks. If the animal survives this period it may rally, but rarely ever is restored to health.

TREATMENT.—Administration of medicine is of little use when once the disease is established.

Preventive measures should be directed to improving the pasturage by draining, and fencing off swampy places. Salt or lime, at the rate of 5 cwt. to the acre, applied to the ground in June, July and August, is beneficial. Pastures should not be overstocked.

Manure from affected sheep should be mixed with quicklime and not placed on moist ground. Diseased livers should be burnt.

Never allow dredging of ditches or streams to lie upon the banks, but mix them thoroughly with quicklime.

Keep lambs off wet lands likely to be flooded from rivers, especially in autumn.

Sheep which are grazed on ground known to be infected should be allowed salt and dry food daily.

STURDY OR GID.

(From "Diseases of Sheep," by Wm. Cooper and Nephews.)

A parasitic disease most common in young sheep up to two years old, due to the lodgment and development in the brain of the cystic form of the *tænia cænurus cerebralis*—a tapeworm of the dog. Segments of the tapeworm containing mature eggs are expelled from the alimentary canal of the dog, fall on the grass and are picked up by the sheep when grazing. At first they may cause no inconvenience, but as they develop the brain becomes pressed upon, and nervous symptoms appear.

SYMPTOMS.—These vary somewhat according to the locality of the parasite. The animal may appear dull and stupid, one or both ears may be lopped, the pupils of the eyes may be unequal in size. The sheep may persistently turn in one direction, bore forwards, or incline to fall backwards. When the parasite is situated in the very back of the brain, total paralysis may follow. Animals affected rapidly lose flesh. The sound of running water, or the bleating of other sheep, seem to possess a special attraction for them.

TREATMENT.—The locality of the parasite can frequently be determined by pressing on the skull, which becomes softened over the spot where the hydatid is lodged. Here the skull may be incised with a trephine (an instrument made for the purpose), and the parasite either removed bodily, or its cyst perforated, and the fluid allowed to escape. The wound is then closed by the application of a bandage, or of tarred tow, and recovery follows if too much brain substance has not been destroyed. As a preventative measure, too many dogs should not be permitted on the pasture. All that are kept should receive a dose of vermifuge medicine at intervals of a few months.

GESTATION TABLE FOR SHEEP AND GOATS.

Time of Service.		Time of Parturition.		Time of Service.		Time of Parturition.	
Jan.	1.....	May	30	July	9.....	Dec.	5
"	8.....	June	6	"	16.....	"	12
"	15.....	"	13	"	23.....	"	19
"	22.....	"	20	"	30.....	"	26
"	29.....	"	27	Aug.	6.....	Jan.	2
Feb.	5.....	July	4	"	13.....	"	9
"	12.....	"	11	"	20.....	"	16
"	19.....	"	18	"	27.....	"	23
"	26.....	"	25	Sept.	3.....	"	30
Mar.	5.....	Aug.	1	"	10.....	Feb.	6
"	12.....	"	8	"	17.....	"	13
"	19.....	"	15	"	24.....	"	20
"	26.....	"	22	Oct.	1.....	"	27
April	2.....	"	29	"	8.....	Mar.	6
"	9.....	Sept.	5	"	15.....	"	13
"	16.....	"	12	"	22.....	"	20
"	23.....	"	19	"	29.....	"	27
"	30.....	"	26	Nov.	5.....	April	3
May	7.....	Oct.	3	"	12.....	"	10
"	14.....	"	10	"	19.....	"	17
"	21.....	"	17	"	26.....	"	24
"	28.....	"	24	Dec.	3.....	May	1
June	4.....	"	31	"	10.....	"	8
"	11.....	Nov.	7	"	17.....	"	15
"	18.....	"	14	"	24.....	"	22
"	25.....	"	21	"	31.....	"	29
July	2.....	"	28				

MARKETING OF SHEEP AT STOCK YARDS.

BY E. G. GORDON.

Sheep are marketed in very much the same manner as other classes of live stock. When a car of sheep arrives at the shutes, they are unloaded. The number of the car is taken, whom they are consigned to, the number of sheep in the car, what kind of condition they are in, etc. They are weighed and placed in the pens which are assigned to the different commission houses. All sheep and lambs are fed and watered, feed being placed in the sacks as soon as the pens have been emptied so that when the pens are again filled there is always feed waiting for the sheep. It might be noted here that mature sheep usually gain a little while lambs are more apt to shrink. When the market opens, these sheep are sold by the commission firms' salesmen according to the grades to which they belong. After the sheep are sold and weighed, the seller goes to the commission firm's office and gets his cheque for his stock less marketing and freight expenses. These sheep are sold to the various packing houses or to the farmers to go back to the land as breeding stock. One thing that cannot be too strongly impressed on the minds of the sheep farmers, namely, the necessity of docking and castrating their lambs. The lack of doing this takes off from \$1 to \$1.50 per 100 lbs. of the value of their lambs.

The following are the costs of selling sheep on the open market:

Yardage.....	6c. per sheep.
Commission.....	\$8.00 per car.
Insurance.....	10c. a car.
Feed.....	Varies from \$3.00 to \$5.00 per car per day.

Every car of live stock that arrives on any of the larger markets is insured as soon as it arrives there for the small sum of 10c. per car. This applies to hogs and cattle as well as sheep. Should anything happen to a man's stock after it is insured, he will be paid full market value if it should die in case of fire or otherwise meet with any injury. This insurance must be paid by all shippers of live stock which accounts for the very low rate.

SHRINKAGE IN SHIPPING.

(From "Feeds and Feeding," by Henry & Morrison.)

During four winters, Linfield of the Montana Station, fattened average range lambs and two-year-old wethers on clover hay and grain, shipping them from Bozeman to Chicago, a distance of about 1,440 miles. Lambs, averaging 87.5 lbs. when shipped, shrank 7.6 per cent. on the average, the range being 4.6 to 8.7 per cent. The two-year-old wethers shrank somewhat less, averaging 6.8 per cent., with a range of 5.1 to 8.6 per cent. The older sheep yielded 2.2 per cent. more dressed carcass.

Shaw states that fattened lambs weighing under 100 lbs., when four days in transit, will shrink 7 to 8 lbs., one-year-old wethers weighing about 120 lbs., approximately 10 lbs., and aged wethers and ewes about 12 lbs. On shipping lambs fattened in four trials on corn and either clover hay, alfalfa hay, corn stover, soybean straw, or timothy hay, with and without the addition of a nitrogenous supplement, Carmichael and Hammond of the Ohio Station found no variation in shrinkage attributable to the ration. Lambs shipped 135 to 149 miles shrank 1.3 to 6.8 per cent.

When sheep are marketed off pasture, especially rape, excessive shrinkage from scouring may be prevented by giving dry feed for a day or more prior to shipping. The grain ration should be decreased previous to shipping for the same reason. Shaw regards oats as the safest concentrate to feed sheep when in transit.

WOOL

DIRECTIONS FOR CARING FOR SHEEP IN ORDER TO PRODUCE A GOOD QUALITY AND CONDITION OF WOOL.

(1) Feed sheep well and regularly. Sheep poorly fed will possess a harsh fleece lacking in oil and frequently with a feeble or weak fibre. This does not constitute desirable wool for sale. Where sheep are starved for a period, the effects will be shown in the wool by a weak section which will break readily and, consequently, cannot be used satisfactorily for combing or worsted purposes.

(2) Every effort should be taken to keep the wool free from chaff, hay and burrs. This can be avoided by using proper feed racks and care in preventing hay or straw dropping upon the sheep during feeding.

(3) If sheep are scouring, if possible keep the wool well clipped behind, so as to prevent the formation of heavy dung locks.

(4) Endeavor to eliminate in breeding operations black sheep from the flock. Mate only sheep possessing pure white wool. Black wool is sold in the reject class.

(5) In marking sheep, never use oil paint or tar, which are insoluble and will not scour from the wool.

(6) Sheep should be dipped in some reliable material twice a year, in the fall before entering winter quarters and in the spring after shearing.

DIRECTIONS FOR PREPARING AND PACKING WOOL.

(1) Shearing should be done on a clean board floor, never on the dirt, and the fleece should be kept as compact as possible.

(2) Fleece should be tied with paper twine, never binder or sisal twine. Turn in the sides of the fleece and roll compactly from tail to neck with the bright or clipped surface outward.

(3) The wool should be packed in very closely woven jute, hemp or paper-lined sacks.

(4) Tags, dung locks or stained pieces should never be included with the fleeces, but always packed separately if wool is adhering to them.

(5) All black or gray fleeces should be packed by themselves.

(6) Lamb fleeces, possessing unusual quality and length, may well be kept apart from the others and offered for sale as a distinct class.

(7) The wool should be absolutely dry at shearing and should never, subsequently, be permitted to become wet.

(8) Tubwashing should not be practised. If washing is followed at all, let it be done on the sheep's back, and at the time of shearing keep the washed separate from the unwashed.

PERCENTAGES OF SHRINKAGE GIVEN IN TOP LINE, 35 TO 49, INCLUSIVE. SCOURED PRICE OPPOSITE PRICE IN GREASE.

Price in Grease.	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
.30	.46	.47	.47½	.48½	.49	.50	.50¾	.51¾	.52½	.53½	.54½	.55½	.56½	.57½	.58¾
.31	.47¾	.48½	.49½	.50	.51	.51½	.52½	.53½	.54½	.55½	.56½	.57½	.58½	.59½	.60½
.32	.49½	.50	.50¾	.51½	.52½	.53½	.54½	.55	.56	.57	.58	.59	.60	.61½	.62½
.33	.50¾	.51½	.52½	.53½	.54	.55	.56	.57	.58	.59	.60	.61	.62½	.63½	.64½
.34	.52½	.53	.54	.54¾	.55¾	.56½	.57½	.58½	.59½	.61	.61¾	.63	.64	.65½	.66½
.35	.53¾	.54½	.55½	.56½	.57½	.58½	.59½	.60	.61½	.62½	.63½	.64½	.66	.67½	.68½
.36	.55½	.56½	.57	.58	.59	.60	.61	.62	.63	.64½	.65½	.66½	.68	.69½	.70½
.37	.57	.57½	.58¾	.59¾	.60¾	.61½	.62¾	.63¾	.65	.66	.67½	.68½	.69¾	.71	.72½
.38	.58½	.59½	.60½	.61½	.62½	.63½	.64½	.65½	.66½	.68	.69	.70	.71½	.73	.74½
.39	.60	.61	.62	.63	.64	.65	.66	.67½	.68½	.69½	.70¾	.72	.73½	.75	.76½
.40	.61½	.62½	.63½	.64½	.65½	.66½	.67½	.69	.70	.71½	.72¾	.74	.75½	.77	.78½
.41	.63	.64	.65	.66	.67½	.68½	.69½	.70¾	.71¾	.73½	.74½	.76	.77½	.78¾	.80½
.42	.64½	.65½	.66¾	.67¾	.68¾	.70	.71½	.72¾	.73¾	.75	.76½	.77¾	.79½	.80¾	.82½
.43	.66	.67½	.68½	.69½	.70½	.71½	.72¾	.74	.75½	.76½	.78½	.79½	.81	.82½	.84½
.44	.67¾	.68¾	.69¾	.71	.72	.73½	.74½	.75¾	.77½	.78½	.80	.81½	.83	.84½	.86½
.45	.69½	.70½	.71½	.72¾	.73¾	.75	.76½	.77¾	.79	.80	.81¾	.83½	.85	.86½	.88
.46	.70¾	.72	.73½	.74½	.75½	.76¾	.78	.79½	.81	.82	.83½	.85	.86¾	.88½	.90
.47	.72½	.73½	.74½	.75¾	.77	.78	.79¾	.81	.82½	.84	.85½	.87	.88½	.90	.92
.48	.73¾	.75	.76	.77¾	.78¾	.80	.81½	.82¾	.84	.85¾	.87	.88¾	.90½	.92	.94
.49	.75½	.76½	.77½	.79	.80½	.81½	.83	.84½	.86	.87¾	.89	.90½	.92½	.94	.96
.50	.77	.78	.79½	.80¾	.82	.83½	.84½	.86	.87¾	.89½	.90¾	.92½	.94½	.96	.98
.51	.78½	.79¾	.81	.82½	.83½	.85	.86½	.88	.89½	.91	.92½	.94½	.96	.98	1.00
.52	.80	.81½	.82½	.83¾	.85½	.86½	.88	.89½	.91	.92¾	.94½	.96½	.98	1.00	1.02
.53	.81½	.82¾	.84	.85½	.87	.88½	.90	.91½	.93	.94½	.96½	.98	1.00	1.02	1.04
.54	.83	.84½	.85¾	.87	.88¾	.90	.91½	.93	.94¾	.96½	.98	1.00	1.02	1.04	1.06

GRADES OF ONTARIO WOOL AND CORRESPONDING TERMS USED IN
AMERICAN AND BRITISH TRADE.

Ontario.	American.	British.
.....	Fine	64's—66's
Clothing	$\frac{1}{2}$ blood	60's
Fine medium	blood	56's
Medium	$\frac{1}{4}$ blood	50's
Low medium	Low $\frac{1}{4}$ blood	44's—46's
Coarse	Common	40's
Lustre	Braid	36's

CO-OPERATIVE WOOL SALES CONDUCTED IN CANADA.

PRINCE EDWARD ISLAND.

Grade.	Pounds.	Fleeces.	Average weight per fleece.	Price per pound.	Per cent. of total.
Medium Combing	9,255	1,527	6.06	c. 73	37.93
Medium Clothing	1,044	208	5.02	73	4.27
Low medium Combing	7,819 $\frac{1}{2}$	1,161	6.73	70 $\frac{1}{2}$	32.05
Coarse	1,806	260	6.94	67 $\frac{1}{2}$	7.4
Lustre	3,735	484	7.71	67 $\frac{1}{2}$	15.01
Rejects	454 $\frac{1}{2}$	64	7.09	60	1.86
Gray and black	122 $\frac{1}{2}$	20	6.01	60	.5
Locks and pieces	108	.....	.....	56	.44
Tags	150	.....	.....	50	.2

NOVA SCOTIA.

PICTOU COUNTY.

Grade.	Fleeces.	Lb.
Medium combing	905	5,109
Medium clothing	254	1,226 $\frac{1}{2}$
Medium clothing	178	1,156 $\frac{1}{2}$
Total		7,492

GUYSBORO COUNTY.

Grades of wool.	Lb.	Per lb.
Medium combing	1,126 $\frac{1}{4}$	72 $\frac{1}{2}$ c.
Medium clothing	123	72 $\frac{1}{2}$ c.
Low medium combing	90	71c.
Coarse	10	70c.
Lustre	22	70c.
Gray and black	24	65c.
Locks and pieces	41	65c.
Tags	3 $\frac{1}{2}$	50c.
Rejects	23	40c.

ANNAPOLIS VALLEY.

Grade.	Lb.	Per lb.
Medium combing	1,304	70 $\frac{3}{4}$ c.
Medium clothing	70	70 $\frac{3}{4}$ c.
Low medium combing	439	67 $\frac{1}{2}$ c.
Coarse and lustre	291 $\frac{1}{2}$	60c.
Black, gray and rejects	119	50c.
Locks and pieces	44	35c.
Tags	18	22c.
Total		2,285 $\frac{1}{2}$

ANTIGONISH COUNTY.

Grades of wool.	Lb.	Per lb.
Medium combing	15,600	72 $\frac{1}{2}$ c.
Medium clothing	1,890	
Low medium combing	2,807	71c.
Coarse	418	70c.
Lustre	405	70c.
Rejects	38	40c.
Gray and black	361	65c.
Locks and pieces	250	65c.
Tags	29	50c.

RICHMOND COUNTY.

Grade.	Fleeces.	Lb.
Medium combing firsts	209	969
Medium clothing firsts	38	143 $\frac{3}{4}$
Low medium combing	36	176 $\frac{1}{2}$
Coarse	8	44
Lustre	3	18 $\frac{1}{2}$
Gray and black	16	73
Locks and pieces	..	9 $\frac{1}{2}$
Tags	..	3
Total	310	1,437 $\frac{1}{4}$

INVERNESS COUNTY.

	Lb.	Per lb.
Medium combing	1,965	70 $\frac{3}{4}$ c.
Low medium combing	282	67 $\frac{1}{2}$ c.
Medium clothing	202 $\frac{1}{2}$	70 $\frac{3}{4}$ c.
Black	38	50c.
Coarse	29	60c.

NEW BRUNSWICK.

Grade.	Lb.
Medium clothing	226.5
Medium combing	2,001
Fine medium	661
Low medium	673
Lustre	212
Coarse	114.5
Rejects	34
Gray and black	19
Locks and pieces	83
Tags	34.5
	<u>4,058.5</u>

QUEBEC.

	Per lb.
Medium clothing	56 $\frac{1}{4}$ c.
Medium combing	56 $\frac{1}{4}$ c.
Low medium combing	55 $\frac{1}{4}$ c.
Coarse combing	52 $\frac{3}{4}$ c.
Black and gray	43 $\frac{1}{4}$ c.
Rejections	43 $\frac{1}{4}$ c.
Tags	5c.
Medium combing	55 to 52 $\frac{1}{4}$ c.
Low medium combing	54 to 51c.
Coarse combing	53 to 48 $\frac{1}{4}$ c.
Rejects and black	40 to 35c.
Tub washed	70 to 63c.

QUEBEC.

STATEMENT OF WOOL GRADES.

Name of Association.	Medium Clothing.	Medium Combing.	Low Medium Combing.	Coarse Combing.	Black and Gray.	Rejections.	Tags.	Miscellaneous.	Total.
Pontiac		21,230	17,362	5,916	362	761	266	washed 405	46,302
Richmond	162	2,615	8,418	19,827	335	3,634	57	damp 119	35,048
Compton		11,389	11,984	9,137	.....	2,013	44		34,686
Sherbrooke	75	11,442	6,117	1,438	196	754	231		20,253
Stanstead		8,411	8,461	1,374	101	1,373	131		19,851
District of Bedford ...	612	6,616 $\frac{1}{2}$	8,908	1,626 $\frac{1}{2}$	246 $\frac{1}{2}$	352 $\frac{1}{2}$	159		18,521
Argenteuil		1,400	6,278	5,299	349	1,365	26		14,717
District of Beauharnois		1,771	5,147	4,699	.....	224	73		11,914
Megantic		232	2,967	4,963	121	104	.....		8,327
Ottawa		805	1,277	808	.....	189	.....	washed 1,000	4,079
Totals	849	65,911 $\frac{1}{2}$	76,919	55,027 $\frac{1}{2}$	1,710 $\frac{1}{2}$	10,769 $\frac{1}{2}$	987	1,524	213,698
Per cent. of totals	.04	30.87	35.94	25.7	.82	.05	.04	.75	

STATEMENT OF MEMBERSHIP, NUMBER OF FLEECES, AVERAGE WEIGHT AND PRICE PER FLEECE AND TOTAL VALUE OF WOOL MARKETED.

Name of Association.	Number of Members.	Number of Fleeces.	Average Weight Fleece.	Average Price per Fleece.	Total Value.
			lbs.	\$ c.	\$ c.
Pontiac	348	6,166	7.5	3 80	23,441 07
Richmond	253	4,545	7.7	4 00	18,200 90
Compton	373	4,923	7.002	3 80	18,720 04
Sherbrooke	196	2,779	7.28	3 97	11,037 91
Stanstead	166	2,816	7.04	3 85	10,767 07
District of Bedford	182	2,454	7.5	4 11	10,098 89
Argenteuil	130	1,980	7.4	3 74	7,410 82
District of Beauharnois	117	1,394	8.55	4 38	6,115 80
Megantic	94	986	8.44	4 51	4,453 41
Ottawa	17	372	8.2	4 40	1,636 17
Totals and averages	1,876	28,415	7.66	4 05	111,882 08

MANITOULIN CO-OPERATIVE
ASSOCIATION.

Grade.	Lb. sold.	Price.
Medium combing	6,300	\$0.56
Low medium combing.....	7,500	.55
Lustre	5,400	.54
Coarse	1,100	.50
Gray, black, locks and pieces	250	.50
Rejections	200	.40
Tags	260	.12
Average flat price, 55 cents.		

SOUTH MANITOULIN WOOL-
GROWERS' ASSOCIATION.

Grade.	Lb.	Per lb.
Ungraded about	3,000	\$0.54
Medium combing, firsts	490	.57
Medium combing, seconds ..	50	.57
Low medium combing	2,277	.56
Coarse	3,804	.51
Lustre	7,689	.56
Rejects	526	.48
Gray and black	22	.48
Locks and pieces	138	.46
Tags	158	.15

Total 18,154
Average price, 54 cents.

MANITOBA.

Grade.	Lb.	Per lb.
Fine combing	8,860	\$0.60
Fine clothing	4,074	.60
Fine medium combing	12,330	.65
Medium combing, first	50,086	.63
Medium clothing	9,729	.56
Coarse	69,198	.57
Rejects	6,796	.45
Gray and black	2,351	.48
Mohair	193	.60
Tags	4,531	.20
Total	168,148	

SASKATCHEWAN.

Grade.	Lb.
Fine medium staple	41,753
Fine clothing	12,176
Medium staple	38,633
Fine staple	25,059
Medium clothing	34,697
Low medium combing	409
Rejects	5,748
Medium combing	2,994
Low staple	1,262
Fine combing	33
Fine medium combing	821
Black	466
Tag	513
Pulled wool	635
Mohair	50
Ungraded wool	194

Total 165,443

ALBERTA.

Grade.	Lb.	Per lb.
Fine combing	15,630	\$0.59
Fine medium combing	49,940	.64
Medium combing	41,516	.62½
Low medium combing ...	9,596	.59
Fine clothing	17,193	.54
Medium clothing	7,922	.59
Coarse	3,528	.56
Rejects	2,211	.42
Mohair	270	.60
Karakule	435	.50
Tags	2,434	.20
Blacks	778	.45
Total	151,453	
Average price, 60 cents.		

ALBERTA PROVINCIAL SHEEP-
BREEDERS' ASSOCIATION.

Grade.	No. of bags.	Lb.	Per lb.
Fine combing	16	3,161	\$0.60
Fine clothing	19	3,783	.54
Fine medium combing ..	58	12,096	.65
Medium combing	92	17,804	.63½
Medium combing washed	3	333	.65
Low medium combing ..	57	11,594	.60
Low medium clothing ..	1	188	.55½
Coarse	48	10,474	.56
Lustre	1	173	.52
Rejects	12	2,603	.42
Gray and black	5	689	.45
Locks and pieces	2	347	.20
Tags	3	677	.20

317 63,922

PINCHERS' WOOL-GROWERS'
ASSOCIATION.

Grade.	Lb.	Per lb.
Fine combings	6,915	\$0.59
Fine medium combing	5,757	.60
Medium combings	27,735	.60
Low combings	9,223	.59
Fine combing	562	.53
Fine medium clothing	6,533	.57
Rejects	3,491	.42
Gray and black	160	.40
Locks and pieces	409	.30
Tags ...	501	.20

THE LACOMBE WOOL-GROWERS'
ASSOCIATION.

Grade.	Lb.	Per lb.
Fine combing	3,106	\$0.61
Fine clothing	1,725	.56
Fine medium combing	10,293	.63
Medium combing	18,528	.62
Medium clothing	5,324	.60
Low medium combing	2,877	.61
Coarse	791	.58
Rejects	610	.43
Black	172	.40
Mohair	50	.60
Locks and pieces	251	.30
Tags	1,163	.22
Ungraded	655	.60

45,540

VERMILION WOOL-GROWERS'
ASSOCIATION.

Grade.	Lb.
Fine combing	7,078½
Fine clothing	4,525½
Fine medium combing, firsts.....	8,399
Medium combing, firsts	8,751½
Medium clothing, firsts	4,294
Low medium combing	2,058
Coarse	937

Total 36,043½
at 59 1/16

Grade.	Lb.	Per lb.
Rejects	416	\$0.40
Gray and black	219	.40
Locks and pieces	37½	.15
Tags	717½	.15

Grand total 37,433½

BRITISH COLUMBIA.

1. 10,200 lb., price obtained, 61¼ cents for all classes except locks and pieces, which made 20 cents.

CENTRAL WAREHOUSE, TORONTO.

	Per lb.	Approx. pounds.
Section 1—Fine staples—sacks	64.0625	198,500
Section 2—Fine staples—bales	65.705	57,000
Section 3—Fine medium staple—sacks	65.705	92,000
Section 4—Fine medium staple—bales	67.695	49,000
Section 5—Fine clothing—sacks	62.72	135,000
Section 6—Fine clothing—bales	63.715	43,000
Section 7—Medium clothing	65	12,300
Section 8—Medium staple	63.125	40,000
Section 9—Low staple	56.0625	4,300
Section 10—Rejects, black, tags	34.	10,125
Section 11—Pulled wool	45	700

ALGOMA.

Cheque No.	Name and Address.	Breed.	Fine Medium Coarse.	Medium Clothing.	Low Medium Coarse.	Lustr.	Rejections.	Gray and Black.	Pieces.	Tags.	Total.	Dr. Expenses.	Credit. Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	\$ c.	\$ c.
1	Bishop, Robert, Harmony	Shropshire	7			20					4	27	15 95
2	Brechin, Arch., Bruce Mines	Leicester	188		9	25					30	222	145 45
3	Brown, Alex. J., Milford Haven		12		226	171					64	483	287 67
4	Caldwell, Jno., Massey Station		63		6						10	81	48 97
5	Coleman, R. J., Bruce Mines	Lei. & Shr.	26			40					10	77	44 95
1523	Connell, Wm. C., Bruce Mines	Gr. & Lei.				132					13	132	75 99
982	Campbell, Jas. C., Harmony	Grade.			44	54					11	98	58 92
8	Cliffe, W. H., Walford Station	Oxford.	58		38	9					14	112	68 78
9	Davidson, J. A. A., MacLennan	Grade.				155					22	205	110 12
10	Greston, A., Harmony	Leicester			21	70					11	91	53 46
11	Hamilton, Gus., Spanish	Lei. & Shr.	14	7	13	5					14	105	58 64
12	Kitchen, Alfred, Carterton	Mixed			102	88					31	237	137 37
13	McDonald, Geo., MacLennan	Grade.	8		89	130					32	227	136 69
14	Moore, C., MacLennan	Grade.	21		38						7	59	37 99
15	Newman, F. A., Bar River	Leicester				79					9	104	54 23
16	Orr, Hugh, Bruce Mines	Shr. & Lei.	36		40						11	76	49 50
17	Sommes, Chas. A., Goulais River	Grade.	137		60	9					28	214	136 86
18	Taylor, Wm., Bruce Mines	Leicester	13		29	42					11	86	51 86
19	Tier, Oliver, Goulais River	Mixed	51		54	5					18	110	71 31
20	Weir, Wm., Thessalon	Leicester			26	16					5	42	25 79
21	Whitnell, A., Bruce Mines	Leicester			47	72					16	135	79 50
			14	627	842	1,122				67	371	2,923	1,750 00

BRANT COUNTY.

			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	\$ c.	\$ c.
22	Atmore, T. S., St. George		128	12							18	150	96 07
23	Aulsebrook, Wm., Paris, R.R. 3	Shropshire	71								7	79	50 00
24	Baker, J. S., Burford		291	60	217						92	568	383 76
27	Barker, W. D., Paris, R.R. 2	S. D. & Shr	36	64	84						31	196	129 93
28	Black, Jas. C., Cainsville, R.R. 2	Shropshire	56			8					10	71	45 74
29	Black, Jas. E., Drumbo	Shropshire	54			46					13	100	65 33
30	Bonney, W., Burford					22	56	46			14	124	72 75

31	Brethour, J. E., Burford	16	141	39	9	27	205	136 72
32	Brittain, F., Burford, R.R. 3	20	56	75	8	13	109	67 10
33	Brooks, Chas., Brantford, R.R. 2	56	280	56	8	8	56	37 10
34	Brooks, Wm., & Sons, Paris, R.R. 3	419	4	4	8	29	431	186 65
35	Burt, E. W., Paris	231	19	1	19	59	280	286 05
36	Burt, Wm. D., Brantford, R.R. 2	45	231	29	29	30	296	190 99
37	Cart, Sam, Paris, R.R. 2	55	55	6	6	3	29	16 70
38	Charlton, Fred., St. George	99	99	15	15	6	55	36 66
39	Cornell, T. S., St. George, R.R. 2	60	60	6	6	15	99	65 99
40	Crozier, Robt., Paris, R.R. 1	56	56	8	8	6	60	40 00
41	Davies, F. H., Scotland, R.R. 4	23	23	47	9	8	56	36 75
42	Denby, Geo. W., Burford, R.R. 2	96	96	96	214	9	79	50 25
43	Douglas, Jas., Caledonia	33	33	33	235	32	310	184 18
44	Douglas, Wm. A., Caledonia	255	255	6	6	27	268	156 10
48	Easton, Robt., Paris, R.R. 2	200	200	5	14	35	265	175 09
49	Fair, Jas. G., Cainsville, R.R. 2	74	74	15	115	15	129*	90 58
50	Foran, J. J., St. George	63	63	23	7	27	247	155 32
51	Gould, Tom., Burford, R.R. 2	98	98	24	24	8	74	49 33
52	Gurney, C. G., Paris, R.R. 3	279	279	4	397	14	92	61 62
53	Gurney, C. W., Paris	25	25	34	228	28	198	122 58
54	Gurney, F. W., Paris, R.R. 3	8	8	6	24	14	98	65 33
55	Guthrie, M., Ayr	32	32	37	37	11	93	78 63
56	Guthrie, R. H., Paris Station	107	107	11	16	119	935	586 05
57 & 999	Hartley, Wm. J., Harley, R.R. 2	28	28	37	24	10	37	57 43
58	Henderson, H. T., Paris, R.R. 3	8	8	6	6	5	37	24 81
59	Hicks, J. F., Paris, box 365	32	32	32	32	4	32	21 33
60	Howell, M., St. George, R.R. 1	93	93	28	28	9	108	54 30
61	Hunter, Herbert, Brantford, R.R. 1	145	145	81	30	16	121	79 86
62	Hunter, Jno., Brantford, R.R. 1	80	80	7	7	30	256	165 34
63	Jarvis, Arthur, Paris	24	24	24	136	12	87	56 86
64	Jameson, W. H., Ohswaken, box 165	41	41	16	122	20	160	98 37
65	Johnston, Alex., Burford, R.R. 3	27	27	7	7	21	179	105 36
66	Kelley, J. A., Paris	9	9	63	63	5	42	25 28
67	Kelley, L., Paris, R.R. 2	56	56	55	55	8	72	42 01
68	Kitchen, L. W., St. George, R.R. 2	75	75	11	11	11	113	72 92
69	Knill, C., Paris, R.R. 3	7	7	80	80	9	86	57 00
70	Kyle, Jno., Drumbo	105	105	8	8	35	192	128 87
71	Lampkin, J. F., Brantford, R.R. 1	137	137	56	56	11	78	51 53
72	Lampkin, F., Brantford	178	178	5	5	24	213	132 05
73	Lawrason, S. B., St. George	84	84	10	10	29	183	122 04
74	Litchfield, Arch., Brantford	79	79	8	8	9	94	62 14
75	Lovett, C., Paris, R.R. 3	67	67	8	8	9	79	52 66
76	Lovett, Jno., Paris, R.R. 3	149	149	7	7	8	75	49 76
77	Luck, Fred., Paris, R.R. 4	149	149	7	7	19	156	101 16

* Indicates some washed wool included.

BRANT COUNTY.—Continued.

Cheque No.	Name and Address.	Breed.	Fine Medium Combing.	Medium Combing.	Medium Clothing.	Low Medium Combing.	Coarse Combing.	Lustre Combing.	Rejections.	Gray and Black.	Locks and Pieces.	Tags.	Total.	Dr. Expenses.	Credit Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	\$ c.	\$ c.
78	Lundy, G. M., Mohawk	Shropshire.	65	65									7	65	\$ 43 10
47	Levis, F. M., Burford				62								20	23	85 81
45	Mathews, Chas. H., Middleport, R.R. 1.						60					1	6	23	34 57
46	McDiarmid, Alex., Mohawk										5		11	89	57 48
79	Midgeley E., Paris, R.R. 3	Shropshire.				5	19						7	51	33 49
80	Mordue, Jno. A., Brantford, R.R. 2	Shropshire.				27	83			21		10	28	23	143 06
81	McAllister, Albert, Mohawk					117							13	23	95 71
82	McAllister, M., Paris, R.R. 3					9	115	23		4			16	127	84 01
83	McEwen, Alex., Mohawk					123							22	192	127 76
84	McEwen, Arch., Brantford, R.R. 2					192							47	23	222 36
85	McIntyre, Alex., Burford, R.R. 3					297							15	114	71 64
86	McIntyre, Chas., Scotland					60							57	23	271 04
87	McNaught, S., Brantford, R.R. 4					186		73		19			43	23	52 18
88	MacRae, M., Ayr, R.R. 3	Shropshire.				65	4					10	18	187	119 31
89	McRuer, M., Ayr, R.R. 3					132							44	382	251 79
90	Nunan, J. P., Paris	Shropshire				153			7			2	17	164	107 06
25	O'Neil, Daniel, Paris, R.R. 2	Grade.				67			9				26	180	110 09
91	Pearce, B., Norwich	Grade.				23							13	84	50 45
92	Potruff, Clarence, Paris					105	9	18				12	18	23	83 06
93	Potruff, Wesley, Paris, R.R. 3					66			11			2	8	79	50 08
94	Reid, F., St. George	Shropshire				60							8	60	40 00
95	Rich, E. F., Burford, R.R. 3	Southdown				17							8	31	20 75
96	Richardson, Jno., Cainsville, R.R. 2					163	5	154					39	23	206 84
97	Robb, Wm., St. George					94	22						18	116	77 55
98	Roddick, W., Brantford, R.R. 4	Shropshire				125							14	23	83 10
99	Rosebrugh, H. L., St. George	Grade.				44							7	62	41 16
100	Rutherford, Jas., Galt, R.R. 4					9						4	11	108	65 90
101	Sheppard, G. H., Brantford, R.R. 2	Shropshire				23			16				7	56	37 10
102	Smith, A., Paris					56							17	149	91 83
103	Smith, C. E., Scotland					38							30	23	123 02
104	Summerhayes, J. R., Paris, R.R. 4	Shropshire				93	32						13	105	68 55
105	Sweet, F. L., Paris	Hampshire.				102						3	64	23	236 29
106	Switzer, J. S., St. George					307	26			5		6	6	36	24 05
107	Simon, Ambrose L., St. George, R.R. 1	Leicester.				31	5					4	16	161	95 08
108	Simon, Wm., St. George	Leicester.					59	98					10	108	62 18

109	Tawse, E., Middleport	.....	28	49	24	14	115	23	70 00						
110	Telfer, Geo. L., Paris, R.R. 2	Hampshire.	90	164	99	.....	76	362	242 21						
111	Telfer, Wm. E., Paris, R.R. 2	Shropshire.	31	135	12	.....	31	178	119 09						
112	Vanatter, I. M., Paris, box 365	Grade.	60	8	.....	.....	9	68	45 10						
113	Vanstickle & Vanderlip, Paris, R.R. 2	.....	116	7	.....	.....	14	123	81 79						
114	Watt, Jas., Paris, R.R. 2	.....	22	.....	.....	.....	2	22	14 67						
115	Waugh, R. B., Burford, R.R. 2	Shropshire.	112	.....	.....	.....	9	16	77 02						
116	Westbrook, A. E., Oakland	.....	55	.....	.....	.....	4	9	42 22						
117	Wilson, Chas., Brantford, R.R. 4	Shropshire.	28	108	.....	.....	14	136	87 30						
118	Wyckoff, A., Brantford, R.R. 2	.....	61	.....	.....	.....	2	7	40 96						
26	Wilson, A. W., Wilsonville	.....	63	8	.....	.....	10	71	46 87						
			736 8, 422	797½	2, 028	1, 999	334	261	75	31	149	1, 902	1483½	10 00	9, 510 11

BRUCE COUNTY.

119	Arkell, W. H., Teeswater	Oxford.	185	.....	.....	.....	.....	15	26	200	.....	127 26
120	Armstrong, G. B., Teeswater	Leicester.	.....	.....	325	.....	29	.....	28	325	.....	187 10
121	Bell, H. H., Warton, R.R. 6	Grade.	.....	20	130	.....	14	.....	18	164	.....	94 66
122	Botterill, Wm. D., North Bruce	Grade.	4	25	234	.....	.....	25	29	263	.....	153 32
123	Broadfoot, K., Allenford	Oxford.	.....	.....	.....	118	.....	.....	10	118	.....	59 59
124	Batton, Jas., Teeswater	Oxford.	105	56	.....	.....	.....	.....	19	161	.....	105 70
125	Clark, H. G., Paisley, R.R. 2	.....	.....	51	79	6	.....	.....	17	136	.....	81 02
126	Grant, Jno. W., Paisley, R.R. 3	Grade.	.....	65	95	.....	.....	.....	9	95	58	54 11
127	Greaves, Jno., Paisley, R.R. 4	Oxford.	.....	.....	169	.....	.....	5	6	65	.....	41 44
128	Harding, H. H., Lion's Head	Leicester.	.....	.....	15	101	.....	5	13	174	.....	98 61
129	Hawes, H., Lion's Head	Lin. & Le.	.....	54	120	.....	.....	12	21	186	.....	68 50
130	Hemstock, Wm., Dobbinton	.....	28	124	.....	.....	.....	.....	19	152	.....	106 67
131	Inglis, J. S., Midway	Grade.	.....	.....	27	241	6	.....	19	152	3	97 73
132	Jenks, W., Lion's Head	.....	42	18	.....	.....	.....	26	29	300	.....	165 78
133	Kirstine, A., Walkerton	Oxford.	.....	27	203	34	20	.....	6	60	23	39 24
134	Lougheed, Jos. H., Lion's Head	Leicester.	.....	27	.....	.....	.....	.....	29	284	1 45	162 30
135	McBride, Jas. B., Paisley	Shropshire.	88	96	.....	.....	.....	.....	24	184	23	119 64
136	McComb, S., Kincardine, R.R. 4	.....	.....	.....	20	115	.....	.....	24	231	.....	130 80
137	McPadden, S., Paisley	.....	.....	18	133	.....	.....	.....	17	151	.....	88 04
138	McKee, Jas., Teeswater	Oxford.	70	.....	.....	.....	.....	.....	9	70	.....	46 66
139	McLachlan, A., Teeswater	Grade.	31	25	.....	.....	.....	4	7	60	.....	37 65
140	McKay, W., Tiverton	.....	.....	8	159	.....	.....	3	19	170	.....	97 42
141	Moore, Jas., Walkerton, R.R. 3	Lincoln.	.....	.....	960	10	30	.....	82	1,000	36	562 04
142	Peirson, Jno., Port Elgin, R.R. 2	Grade.	.....	75	46	.....	.....	4	13	125	.....	75 35
143	Peer, N., Lion's Head	Leicester.	.....	24	80	20	.....	12	14	145	71	79 49
144	Powell, A. T., Dobbinton, R.R. 2	Leicester.	.....	.....	197	.....	.....	.....	21	197	.....	113 41

BRUCE COUNTY.—Continued.

Cheque No.	Name and Address.	Breed.	Fine Medium Combing.	Medium Combing.	Medium Combing.	Medium Clothing.	Low Medium Combing.	Coarse Combing.	Lustr Combing.	Rejections.	Gray and Black.	Pieces.	Tags.	Total.	Dr. Expenses.	Credit. Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	fleece)	lbs.	\$ c.
145	Rathwell, J. W., Allenford	Grade	77	..	..	..	27	..	..	..	..	..	..	11	104	68 54
146	Sang, C., Southampton, R.R. 1	..	16	..	..	..	22	218	..	..	9	..	..	24	265	154 74
147	Scanlon, Jno., Walkerton, R.R. 3	Ox. & Lei.	..	..	..	..	80	9	..	..	..	..	..	11	89	55 96
148	Scott, E. C., Lion's Head	Leicester	..	..	..	..	49	117	135	..	45	..	..	37	346	204 10
149	Sheepy, Jas., Paisley	Shropshire	..	..	..	..	37	46	..	..	..	..	..	10	83	53 76
150	Steele, T. H., Walkerton	Oxford	..	..	..	..	43	46	..	..	..	..	..	11	89	57 99
151	Stobo, S. D. A. A., Teeswater	Leicester	..	..	..	..	..	126	..	..	..	..	..	13	126	72 54
152	Struthers, Robt., Lucknow	Leicester	..	..	..	..	..	143	..	..	8	..	8	15	159	88 47
153	Swale, Cecil, Wiarton	..	..	..	..	..	30	36	21	46	..	..	..	44	245	147 25
154	Tanner, Chas., Walkerton, R.R. 2	..	..	..	..	..	57	..	..	..	..	..	..	11	57*	44 90
155	Tanner, R. W., Paisley	..	..	..	..	..	45	..	..	..	..	..	..	15	90*	70 90
156	Tanner, T. H., Walkerton, R.R. 2	Grade	..	..	..	..	51	22	..	..	..	..	..	7	73	44 95
157	Thompson, Wm. T., Holyrood	Oxford	..	..	..	..	116	..	..	..	..	..	..	20	139	91 99
158	Tolton, G. E., Walkerton, R.R. 3	..	..	..	..	..	23	166	..	..	..	..	..	22	189	120 94
159	Tolton, Jas. L., Walkerton, R.R. 3	Oxford	..	..	..	..	78	..	..	..	..	..	..	18	170	111 76
160	Turner, J. H., Paisley, R.R. 3	Leicester	..	..	..	..	29	183	..	11	..	..	..	36	223*	164 93
161	Walker, J. L., Teeswater, R.R. 1	Oxford	..	..	..	..	..	..	..	..	..	..	..	12	89	59 33
162	Warder, Wm., Lion's Head, R.R. 1	..	..	..	..	..	39	84	..	..	..	..	..	14	123	73 20
163	Webb, Geo. S., Port Elgin	Leicester	..	..	..	..	34	154	..	..	8	..	14	22	217	122 72
164	Wright, Jno., Chesley, R.R. 1	Leicester	..	..	..	..	23	167	..	..	..	..	..	18	190	110 58
			1,216	-92	1,665	4,483	176	416	9	43	103	893	8,203	8	60	4,913 08

CARLETON COUNTY.

Cheque No.	Name and Address.	Breed.	Fine Medium Combing.	Medium Combing.	Medium Combing.	Medium Clothing.	Low Medium Combing.	Coarse Combing.	Lustr Combing.	Rejections.	Gray and Black.	Pieces.	Tags.	Total.	Dr. Expenses.	Credit. Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	fleece)	lbs.	\$ c.
165	Blair, Jas. & Son, Arnprior	..	..	..	..	..	6	38	..	..	..	..	..	23	221	133 55
166	Johnston, W. J., Carp, R.R. 1	Grade	..	..	..	..	52	98	60	..	7	..	28	25	233	139 11
167	Sparrow, R. M. G., Kinburn	..	..	..	..	..	15	82	20	..	8	..	15	25	233	74 84
168	Serson, W. R., Kinburn	..	..	..	..	..	25	58	..	..	..	..	4	14	121	53 90
169	Wallace, Wm. A., Kars	Shropshire	..	..	..	..	117	125	..	..	..	..	1	9	84	157 69
			351	6	401	80	15	..	..	..	..	..	48	100	901	559 09

DUFFERIN COUNTY.

170	Allan, R. W., Melancthon, R.R. 2	Grade.	52	27	9	13	7	74	44 31
171	Atkinson, W. T., Mono Mills	Grade.	104	80	62	17	18	131	86 54
172	Arthur, J. E., Orangeville, R.R. 1	Ox. & Lei.		56			18	159	94 60
173	Armstrong, J. B., Orangeville, R.R. 3	Oxford.	38	62			13	94	61 03
174	Armstrong, Elmer, Jessopville			62	27		12	89*	55 82
175	Breen, J. F., Melancthon, R.R. 1	Leicester.			115		13	115	66 21
176	Best, Geo., Shelburne, R.R. 2	Grade.		38	156	18	25	226	126 81
177	Braiden, Wm. A., Shelburne, R.R. 1	Leicester.		27	65	11	11	103	59 74
178	Crombie, C., Mono Mills, R.R. 5		54	57	81		22	192	118 97
179	Cowen, J. T., Orton, R.R. 2	Grade.		200	73		27	273	169 56
180	Colbeck, Thos., Monticello		178	375	23		109	621	410 60
181	Cooney, W. F., Laurel	Cotswold.			165		13	165	94 99
182	Carney, Jno., Orton	Oxford.	56	189		8	33	253	161 55
183	Curry, W. Marshall, Orangeville, R.R. 3	Grade.		8	200		21	208	120 24
184	Cook, B. C., Orangeville, R.R. 6		60	126	28		25	214	136 45
185	Colbeck, Jas., Monticello	Grade.	87	65	24		26	186	120 02
186	Donkin, Jas., Melancthon	Grade.	21	15	53		14	118	68 89
187	Dynes, W. A., Amaranth		26	59	40		17	125	77 97
188	Dodds, W. J., Mono Mills, R.R. 5			88	85		16	173	105 04
189	Fife, Robt., Laurel	Leicester.		112	22		23	190	116 31
190	Funston, A., Melancthon, R.R. 2	Grade.			42		4	42	24 18
191	Ferrier, N., Riverview, R.R. 1	Grade.		25	48		9	73	43 57
192	Ferrier, E., Melancthon	Grade.		45	5		7	50	31 57
193	Ferrier, Jas. G., Melancthon	Grade.		8	42	53	12	103	56 04
194	Ferris, Alfred, Melancthon, R.R. 2		8	45	8		7	61	38 63
195	Gier, Geo., Waldemar	Grade.		24	170	10	21	204	117 15
196	Gear, J. H., Belwood, R.R. 2	Leicester.		33	162	9	23	210	120 42
197	Gear, D. L., Orton, R.R. 2	Grade.			132		12	142	78 62
198	Hoare, W. A., Amaranth Station, R.R. 1	Grade.			43		4	44	25 02
199	Holmes, Geo., Mono Mills, R.R. 5	Oxford.	96	36	20		20	162	101 09
200	Hill, R., Shelburne, R.R. 4	Grade.		27	80		12	107	63 27
201	Hunter, W. H., Orangeville	Shropshire.	54	33	83	7	20	177	108 35
202	Hunter, Gordon, Orangeville			24	59	15	16	116	66 99
203	Hewson, Hugh & Fred., Orangeville	Leicester.	10	167	162	30	51	369	221 55
204	Hoare, J. W., Orangeville			8	87		10	95	55 19
205	Irwin, A., Shelburne, R.R. 4	Lei. & Ox.	22	80	33		17	135	84 67
206	Jennings, R. T., Mansfield, R.R. 2	Grade.	24	222	168	10	53	424	260 01
207	Lennox, J. C., Creemore, R.R. 1	Grade.		22		8	4	134	19 12
208	Little, Jos., Shelburne, R.R. 5			45	144		22	189	111 59
209	Leslie, H., Orton	Oxford.	27	85			13	20	74 30
210	Lightle, Geo., Amaranth Station	Ox. & Cots.		35	45		8	80	48 22
211	Mortimer, R. M., Honeywood	Grade.	251	64			50	368	233 63

* Indicates some washed wool included.

239	Johnston, Andrew, Iroquois, R.R. 1	40	188	31	20	41	279	23	177 18
240	Marquette, Hugh, Winchester, R.R. 3	62	100	.....	.....	24	162	.....	108 62
241	Mulloy, J. T., Inkerman	.....	174	24	15	34	231*	.....	155 69
242	Whitley, W. K., Spencerville	.....	37	7	.....	6	44	23	28 90
243	Wilson, Geo., Winchester, R.R. 2	.....	35	7	10	7	58	23	34 90
		102	702	5	69	88	147 1,010	1 38	656 25

DURHAM COUNTY.

244	Allin, Henry, Orono	.....	.....	.....	.....	185	151	.....	29	336	23	196 21
245	Allin, S. Chas., Bowmanville	.....	.....	.....	.....	200	.....	.....	19	200	23	114 91
246	Baker, Jno., Hampton, R.R. 1	.....	134	6	.....	.....	.....	.....	19	140	.....	93 38
247	Baker, T. & Sons, Hampton, R.R. 1	.....	129	19	.....	.....	.....	.....	18	149	.....	99 11
248	Ball, Walter E., Enniskillen, R.R. 1	.....	.....	25	.....	.....	.....	.....	2	25	.....	15 94
249	Barton, Jno., Enniskillen	.....	25	144	19	.....	8	.....	26	207	58	126 25
250	Beebe, Dawson, Port Hope, R.R. 3	.....	.....	168	5	.....	.....	.....	26	173	.....	116 88
251	Blackburn, M. N., Darlington	.....	.....	.....	.....	200	11	.....	20	215	94	120 81
252	Blanchard, C. A., Hampton	.....	166	16	32	153	.....	.....	17	155	.....	88 61
253	Brent, A. H., Bowmanville	.....	.....	.....	.....	.....	.....	.....	28	226	23	144 81
254	Brooks, John, Hampton	.....	.....	.....	.....	21	150	.....	19	171	.....	99 75
255	Caldwell, J. W. A., Canton	.....	.....	.....	.....	78	130	.....	24	208	.....	124 57
256	Cole, J. R. R., Bowmanville	.....	226	.....	.....	.....	.....	.....	41	418	23	153 15
257	Clemence, W. J., Bowmanville	.....	47	101	.....	101	35	.....	16	132	.....	86 58
258	Corbett, Leon, Parrytown, R.R. 4	.....	125	.....	.....	41	140	.....	20	181	23	106 51
259	Courtice, W. E., Courtice	.....	.....	.....	.....	21	57	.....	10	78	.....	46 21
260	Dundas, W. J., Port Hope, R.R. 4	.....	5	.....	.....	32	24	.....	8	68	23	39 16
261	Harris, Frank, Burketon	.....	.....	.....	.....	112	9	.....	14	121	.....	69 66
262	Heslip, Jno., Port Hope, R.R. 1	.....	.....	.....	.....	78	30	.....	13	108	.....	67 00
263	Kivell, Jno. R., Hampton, R.R. 1	.....	81	42	.....	.....	.....	.....	17	123	23	82 19
264	Link, Herbert E., Enniskillen	.....	.....	.....	.....	47	9	.....	7	56	.....	35 15
265	Lancaster, J. W., Port Granby	.....	446	.....	.....	.....	164	.....	80	660	.....	389 36
266	Lang, C. J., Burketon	.....	69	.....	.....	.....	.....	.....	6	71	.....	46 52
267	Marlow, Wilson H., Burketon, R.R. 1	.....	116	.....	.....	22	.....	.....	14	138	23	91 12
268	Mountjoy, Henry, Burketon Station	.....	.....	.....	.....	9	184	.....	17	193	.....	111 67
269	Nesbitt, Geo., Nestleton Station	.....	.....	.....	.....	6	215	.....	23	221	.....	127 60
270	Nesbitt, Jno., Nestleton Station, R.R. 1	.....	108	.....	.....	14	155	.....	31	286	23	172 29
271	Nesbitt, Wm. H., Burketon, R.R. 1	.....	18	12	57	20	.....	.....	15	112	23	60 03
1520	Northcott, S. A., Taunton	.....	61	.....	.....	120	330	.....	64	535	.....	316 85
273	Payne, Wm., Newcastle, R.R. 3	.....	112	.....	.....	.....	.....	.....	11	112	.....	74 66
274	Peacock, Geo. H., Campbellcroft	.....	103	.....	.....	15	.....	.....	16	128	.....	80 85
	Peacock, J. R., Campbellcroft	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

* Indicates some washed wool included.

DURHAM COUNTY.—Continued.

Cheque No.	Name and Address.	Breed.	Rejections.										Total.		Dr. Expenses.	Credit. Net.
			Fine Medium Combing.	Medium Combing.	Clothing.	Low Medium Combing.	Coarse Combing.	Lustre Combing.	Rejections.	Gray and Black.	Locks and Pieces.	Tags.	fleeces	lbs.		
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	\$ c.	\$ c.
275	Pearce, W. H., Newcastle	Leicester.	.....	.....	.....	33	222	23	11	.....	.....	.....	30	289	23	167 41
276	Robbins, Myron, Hampton, R.R. 1	Cotswold.	.....	.....	.....	.....	306	.....	.....	.....	.....	11	32	332	.....	189 08
277	Sleeman, J. G., Port Hope	.....	.....	.....	.....	27	303	.....	9	.....	.....	.....	37	339	.....	196 19
278	Smith, T. W., Millbrook	Shropshire.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	22	160	63	106 03
279	Swain, Stanford, Burketon	Leicester.	.....	.....	.....	.....	222	.....	17	.....	.....	7	25	246	23	138 00
280	Symons, E. J., Zion, R.R. 3	.....	.....	.....	.....	19	185	.....	.....	.....	.....	.....	21	204	.....	118 61
281	Taylor, W. F., Enniskillen, R.R. 1	Grade.	.....	.....	.....	.....	250	.....	.....	.....	.....	4	21	254	23	144 75
282	Thorndyke, E., Millbrook	Shr. & Lei.	.....	.....	.....	331	449	.....	.....	.....	.....	.....	101	820	.....	496 18
283	Veals, A. H., Franklin	.....	.....	.....	.....	36	20	.....	.....	.....	.....	7	19	144	70	89 60
284	Williams Bros., Nestleton Station	Grade.	.....	.....	.....	.....	86	.....	.....	.....	.....	.....	8	86	.....	49 51
285	Wilson, A. W., Franklin, R.R. 1	.....	.....	.....	.....	39	168	10	.....	.....	.....	2	24	219	.....	127 87
286	Wilson, Norman, Perrytown	Shropshire.	.....	.....	.....	8	.....	.....	.....	.....	.....	12	19	132	.....	83 15
288	Young, J. A., Orono	Grade.	.....	.....	.....	24	.....	.....	.....	7	.....	.....	11	84	1 16	53 42
			2,429	290	1,361	4,759	228	220	26	18	168	1,067	9,499	7 00	5,716 79	

ELGIN COUNTY.

289	Backus, Story, Wallacetown	Lei. & Ox.	.....	.....	.....	31	92	21	.....	.....	.....	6	21	150	23	92 76
290	Brown, Duncan & Sons, Shedden	Grade.	.....	.....	.....	85	267	.....	.....	.....	.....	.....	46	352	1 46	225 43
291	Burton, Edward, St. Thomas, R.R. 1	.....	.....	.....	.....	41	72	58	.....	.....	.....	.....	20	171	23	106 40
292	Campbell, A. C., Iona Station, R.R. 1	Grade.	.....	.....	.....	.....	21	66	91	.....	.....	7	20	185	23	105 39
293	Colthart, J., & Son, Rodney, R.R. 1	Leicester.	.....	.....	.....	.....	71	.....	5	.....	.....	.....	9	76	23	43 17
294	Crabbe, Frank, West Lorne, R.R. 3	Grade.	.....	.....	.....	31	51	61	.....	.....	.....	2	15	145	23	88 60
330	Chapman, J. G., St. Thomas, R.R. 6	.....	.....	.....	.....	120	.....	.....	.....	.....	.....	.....	21	125	.....	83 38
331	Crabbe, Mrs. E., West Lorne, R.R. 3	Lin. & Ox.	.....	.....	.....	.....	.....	84	.....	16	.....	.....	10	100	23	55 56
322	Docker, Ed. V., Wallacetown	Oxford.	.....	.....	.....	24	93	25	.....	.....	.....	.....	16	142	23	89 46
295	Duncanson, A. G., Dutton	.....	.....	.....	.....	12	27	.....	.....	.....	.....	.....	5	39	.....	25 21
296	Duncanson, Peter, Dutton	.....	.....	.....	.....	23	.....	.....	.....	.....	.....	.....	6	48	.....	31 27
297	Ferguson, J. D., & Sons, St. Thomas, R.R. 8	Shr. & S. D.	.....	.....	.....	288	26	.....	.....	.....	.....	.....	75	523	23	350 78
298	Gilbert, E. C., St. Thomas, R.R. 7	Grade.	.....	.....	.....	165	15	.....	.....	.....	.....	6	25	186	23	120 90
299	Gow, Arthur A., Wallacetown	Oxford.	.....	.....	.....	93	74	16	.....	.....	.....	6	24	189	23	119 73

ESSEX COUNTY.—Continued.

Cheque No.	Name and Address.	Breed.	Tags.										Total.	Dr. Expenses.	Credit. Net.
			Fine Medium Combing.	Medium Combing.	Medium Clothing.	Low Medium Combing.	Coarse Combing.	Lustre Combing.	Rejections.	Gray and Black.	Looks and Pieces.				
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	pieces	lbs.	\$ c.	\$ c.	
340	Enderby, M. G., Amherstburg	Shropshire.	142	12	9	9	9	9	9	9	22	163	90	104 24	
341	Golden, J. H., Amherstburg	Oxford.	97	9	9	9	9	9	9	9	22	163	90	104 24	
342	Golden, R. E., McGregor	Grade.	92	44	10	76	46	46	50	50	33	268	23	173 07	
343	Grenier, Wm., Tilbury	Grade.	50	50	30	30	30	30	30	30	5	50	23	25 25	
344	Harris, Herbert R., Amherstburg	Grade.	48	48	16	16	102	102	11	11	10	129	73	52 23	
345	Herniman, Fred., Cottam	Dor. & Lin.	104	104	28	28	29	29	11	11	11	105	73	71 08	
346	Johnston, A. R., Cottam	Oxford.	57	57	37	37	18	18	8	8	42	394	23	65 82	
347	Moffatt, J. E., Tilbury, R.R. 4	Grade.	150	150	35	35	99	99	37	37	6	55	23	33 96	
348	Ogg, Alex., Tilbury, R.R. 4	Grade.	130	130	135	135	99	99	8	8	11	83	23	53 28	
349	Pettypiece, Fred., Auld	Shropshire.	62	62	5	5	5	5	37	37	8	79	23	42 83	
350	Queenville, Adrien, Tilbury, R.R. 5	Grade.	165	165	8	8	380	380	9	9	41	392	23	246 87	
351	Rowson, H., Tilbury, R.R. 4	Shropshire.	88	88	12	47	135	135	65	65	22	165	23	109 76	
352	Sellars, Gordon W., Amherstburg	Grade.	130	130	5	5	5	5	9	9	38	212	23	136 39	
353	Squire, Wm., Amherstburg	Grade.	222	222	48	881	1,194	1,194	21	289	22	247	23	230 25	
354	Tisdelle Bros., Tilbury	Grade.	88	88	12	47	135	135	65	65	22	247	23	140 51	
355	Vickerman, H. M., Tilbury, R.R. 4	Grade.	33	33	9	5	37	37	176	176	13	100	23	66 78	
356	Waldon, Wm. H., North Malden	Shropshire.	33	33	9	5	37	37	176	176	18	187	23	106 09	
357	Wallace, Jno., Luscombe	Leicester	222	222	48	881	1,194	1,194	21	289	13	79	23	51 68	
358	Wigle, O. C., Kingsville	Grade.	222	222	48	881	1,194	1,194	21	289	524	4,559	5 58	2,827 62	

FRONTENAC COUNTY.

359	Abbott, A. C., Mountain Grove	Grade.	50	50	92	92	235	235	7	7	7	17	17	149	23	93 83
360	Brady, Jas. L., Harrowsmith	Grade.	41	41	26	60	220	220	6	6	6	26	26	248	23	143 35
361	Day, E. E., Harrowsmith	Shr. & Lei.	24	24	86	86	11	11	46	46	46	38	38	358	1 81	212 79
362	Fair, Robt. H., Kingston Station	Grade.	36	36	80	80	11	11	46	46	46	20	20	171	23	103 45
363	Fream Bros., Tichborne	Grade.	45	45	19	19	15	15	8	8	8	18	18	127	23	81 11
364	Joyce, D. E., Sydenham	Grade.	27	27	36	36	15	15	10	10	10	10	10	72	23	43 98
365	Weber, Geo., Ardoch	Grade.	223	223	26	386	481	481	52	10	10	142	142	1,203	2 96	49 36
												25	25	1,203	2 96	727 87

GLENGARRY COUNTY.

366	Curry, Jno., Bainsville	Ox. & Shr.	31	7	175	66	15	6	38	23	24 90
367	Hunt, J., Apple Hill	Grade. . . . .	.....	168	.....	.....	.....	45	358	.....	211 80
368	Kennedy, Angus, Martintown .....	.....	6	50	85	.....	.....	7	56	.....	35 88
369	Kennedy, D. B., Alexandria .....	.....	.....	44	85	.....	.....	15	129	23	76 76
370	MacDougald, Arch. A., Greenfield, R.R. 1	Grade. . . . .	.....	7	7	35	.....	6	49	.....	26 17
371	MacMaster, J. R., Alexandria .....	.....	50	92	20	.....	17	20	179	23	107 74
372	McNaughton, Jas., Williamstown, R.R. 2	Grade.	6	36	95	68	.....	20	205	23	120 57
373	McIntyre, A. C., Maxville, R.R. 1 .....	.....	.....	.....	155	31	.....	20	186	.....	104 89
374	Robertson, Jas., Glen Robertson	Grade. . . . .	.....	122	108	.....	14	32	244	.....	143 63
	.....	.....	93	526	645	66	46	171	1,444	92	852 34

GRENVILLE COUNTY.

375	Beckett, Cecil D., Kemptville, R.R. 4	Oxford	95	76	26	.....	.....	24	197	23	126 53
376	Carroll, Lorne, Merrickville, R.R. 2 .....	.....	28	46	27	.....	.....	12	101	71	62 83
377	Christy, H. E., Oxford Mills	Oxford	35	170	45	.....	.....	32	250	1 43	156 19
378	Montgomery, Wes., Merrickville, R.R. 3	Shropshire.	57	.....	.....	.....	.....	9	57	69	37 31
379	Wilson, W. H., Oxford Mills, R.R. 1	Oxford	133	21	.....	.....	.....	17	154	23	101 82
	.....	.....	348	313	98	.....	.....	94	759	3 29	484 68

GREY COUNTY.

380	Atkinson, Jas., Marmion, R.R. 1	Oxford .....	.....	19	.....	.....	.....	3	19	.....	12 11
381	Barron, Jas., Berkley .....	.....	4	56	24	.....	.....	12	84	.....	52 19
382	Blair, Arthur G., Markdale, R.R. 1	Leicester.	8	49	9	20	3	10	89	23	53 83
383	Blyth, Jas. P., Durham, R.R. 3 .....	.....	.....	.....	390	10	12	39	412	.....	232 72
384	Bowman, Thos. R., Mount Forest	Suffolk	52	7	.....	.....	.....	14	59*	.....	46 48
385	Brigham, H. G., Allan Park	Shropshire.	225	100	.....	.....	6	39	331	.....	215 32
386	Byers, M. W., Hanover, R.R. 2	Shropshire.	91	5	.....	.....	.....	15	96	.....	64 04
387	Carson, J. H., Cape Rich	Grade.	121	64	48	80	.....	29	185	.....	121 46
388	Doran, D. F., Cape Rich .....	.....	.....	.....	202	.....	3	15	131	.....	74 48
389	Duff, T. N., Chatsworth	Leicester.	36	.....	.....	7	.....	23	209	83	119 00
390	Fleming, Alex., Owen Sound, R.R. 3	Shropshire.	66	12	.....	.....	.....	6	45	.....	29 73
391	Fleming, Ernest, Tara, R.R. 5	Shropshire. . . . .	.....	.....	.....	.....	.....	9	78	.....	52 12

* Indicates some washed wool included.

GREY COUNTY.—Continued.

Cheque No.	Name and Address.	Breed.	Fine Medium Combing.	Medium Combing.	Medium Clothing.	Low Medium Combing.	Coarse Combing.	Lustrous Combing.	Rejections.	Gray and Black.	Locks and Pieces.	Tags.	Total.	Dr. Expenses.	Credit. Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	\$ c.	\$ c.
392	Fraser, Thos., Dundalk, R.R. 2	Grade.	14	12	.....	32	10	.....	7	.....	54	.....	7	54	34 16
393	King, Jos. A., Desboro, R.R. 1	Grade.	.....	.....	.....	36	63	.....	16	.....	113	.....	16	23	68 47
394	Livingston, W. A., Hanover	Shropshire.	29	177	.....	.....	.....	.....	32	.....	217	.....	32	23	140 27
395	McTavish, Peter, Chesley	Oxford.	45	74	.....	.....	.....	.....	17	6	.....	.....	18	23	92 42
397	McQueen, D., Mount Forest	Leicester.	.....	.....	.....	.....	.....	.....	80	.....	15	.....	15	23	73 63
398	Marsh, G. F., Clarksburg	.....	185	.....	.....	27	80	18	.....	8	.....	.....	41	23	212 09
399	Marshall, Jos., Tara, R.R. 4	Grade.	7	.....	.....	16	54	.....	25	.....	77	.....	8	77	45 96
396	Owens, Thos., Chatsworth, R.R. 2	Grade.	.....	.....	.....	12	188	.....	25	.....	200	.....	25	23	115 66
400	Patterson, Samuel, Durham, R.R. 4	Oxford.	158	.....	.....	71	14	.....	40	.....	247	.....	40	.....	159 70
401	Scarf, T. W., Durham	Grade.	27	.....	.....	94	129	.....	38	24	.....	.....	38	1 80	162 52
402	Stevenson, Jno., Holstein	Grade.	.....	.....	.....	72	60	.....	14	.....	132	.....	14	58	79 87
403	Thompson, Jas. A., Desboro, R.R. 1	Grade.	.....	.....	.....	76	65	.....	17	.....	141	.....	17	23	85 65
404	Walker, Frank, Chatsworth	Leicester.	.....	.....	.....	123	104	.....	29	.....	227	.....	29	23	138 07
405	Wallace, J. W., Mount Forest, R.R. 2	Grade.	.....	.....	.....	130	31	.....	18	.....	161	.....	18	.....	100 73
406	Weber, W. A., Markdale, R.R. 4	Oxford.	28	.....	.....	84	.....	.....	15	.....	112	.....	15	23	72 00
407	Willis, Mark, Hanover, R.R. 1	Oxford.	17	.....	.....	132	.....	.....	14	.....	149	.....	14	.....	95 50
			43	1,259	98	1,315	1,511	118	41	14	.....	39	561	4,438	2,750 18

HALDIMAND COUNTY.

Cheque No.	Name and Address.	Breed.	Fine Medium Combing.	Medium Combing.	Medium Clothing.	Low Medium Combing.	Coarse Combing.	Lustrous Combing.	Rejections.	Gray and Black.	Locks and Pieces.	Tags.	Total.	Dr. Expenses.	Credit. Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	\$ c.	\$ c.
409	Bain, Arthur, Caledonia, R.R. 4	Shropshire.	.....	206	55	40	.....	.....	.....	.....	.....	13	47	23	203 22
410	Best, Chas., Jarvis, R.R. 3	Grade.	.....	16	.....	52	10	.....	9	.....	96	.....	9	.....	56 49
411	Bradt, Levi & Son, Cayuga, R.R. 5	Grade.	.....	21	.....	45	34	.....	2	.....	102	.....	12	.....	62 79
414	Carpenter, R. J., Jarvis, R.R. 3	Grade.	.....	26	.....	53	9	.....	12	.....	100	.....	10	.....	63 22
415	Carter, Jas., Hagersville	Grade.	.....	.....	.....	14	75	.....	5	.....	94	.....	10	.....	53 42
417	Doughty, A. W., Nanticoke	Grade.	4	.....	.....	38	15	.....	8	.....	70	.....	9	.....	40 88
418	Douglas, Alex., Cayuga, R.R. 1	Grade.	72	.....	.....	28	.....	.....	15	.....	108	.....	15	.....	67 95
419	Dunnet, Alex., Hagersville	Leicester.	.....	.....	.....	6	101	.....	.....	.....	107	.....	9	.....	61 97
420	Dunnet, Jas., Hagersville	Leicester.	.....	.....	.....	15	90	.....	.....	.....	105	.....	13	.....	61 38
421	Dunnet, W. S., Lythmore	Leicester.	.....	.....	.....	102	.....	.....	.....	.....	102	.....	9	.....	58 72
422	Ebert, Walter, Cayuga, R.R. 3	Leicester.	.....	.....	.....	15	110	.....	.....	.....	125	.....	14	.....	72 89

423	Elder, Peter Jas., Hagersville	Grade.	48	.....	24	.....	7	10	79	47
424	Fleming, Norman, Hagersville	Grade.	44	.....	80	.....	4	13	128	81
425	Foster, W. R., Attercliffe, R.R. 3	.....	35	.....	5	.....	.....	6	40	26
426	Fulton, Frank, Attercliffe Station	Shropshire.	32	.....	.....	.....	.....	5	32	21
427	Gardner, H. T. J., Cayuga, R.R. 2	Shropshire.	77	.....	9	.....	2	11	88	57
428	Gibson, Robt., Cayuga, R.R. 2	Grade.	8	.....	61	20	7	12	99	60
429	Glasby, Jno., Canfield, R.R. 1	Grade.	.....	.....	51	.....	.....	15	130	75
430	Gowan, E. W., Jarvis, R.R. 1	Lincoln	.....	.....	136	.....	.....	8	136	78
431	Gowan, S. A., Hagersville, R.R. 4	Grade.	41	.....	19	.....	.....	12	85	53
432	Harper, Jno. G., Caledonia, R.R. 3	Grade.	.....	.....	14	.....	.....	17	153	90
433	Hartwick, Phillip, Fisherville	Grade.	.....	.....	31	.....	3	10	102	59
434	Hodges, J. S., Dunnville	Shropshire.	92	.....	68	.....	2	13	94	61
435	Howard, Edwd. G., Hagersville, R.R. 1	Grade.	.....	.....	11	.....	.....	13	121	70
436	Hoover, Peter, Selkirk	Grade.	.....	.....	110	.....	.....	27	233	142
437	Hitchcock, L. V., Hagersville, R.R. 1	Grade.	.....	.....	105	.....	.....	5	50	27
438	Jackson, Henry, Lythmore	Grade.	.....	.....	40	.....	1	14	142	84
439	Keen, E. & L., Jarvis, R.R. 1	Grade.	.....	.....	37	.....	.....	12	98	57
440	Keen, Harvey, Jarvis, R.R. 1	Grade.	.....	.....	18	.....	.....	10	87	51
441	King, R. E., Cayuga, R.R. 4	Grade.	.....	.....	15	.....	.....	14	155	89
442	Kohler, Jacob, Cayuga	.....	.....	.....	6	.....	.....	8	72	42
443	Leishman, Geo. G., Cayuga	.....	30	.....	16	.....	.....	8	53	33
444	Long, Patrick, Canfield	Grade.	.....	.....	20	.....	.....	20	232	135
445	McConachie, Jas. A., Caledonia	Grade.	.....	.....	52	.....	.....	11	131	73
446	McKeen, Edwd., Hagersville, R.R. 1	Leicester	.....	.....	25	.....	.....	7	65	38
447	Meadows, Arthur E., Cayuga, R.R. 2	Grade.	.....	.....	15	.....	.....	7	55	33
448	Mehlenbacher, F. W., Fisherville, R.R. 1	Grade.	.....	.....	37	.....	.....	4	42	97
449	Moote, J. E., Dunnville	Grade.	.....	.....	9	.....	.....	19	159	61
450	Martin, M., Hagersville, R.R. 3	Leicester	6	.....	92	.....	.....	11	106	62
451	Nablo, Jacob, Cayuga, R.R. 3	Leicester	.....	.....	100	.....	.....	13	102	57
452	Nichol, Wm., Hagersville, R.R. 5	Grade.	.....	.....	53	.....	.....	9	96	57
453	Oxley, T. Chas., Canfield	Grade.	.....	.....	34	.....	.....	32	257	154
454	Parker, Jas., Canfield	Grade.	22	.....	66	.....	.....	11	94	56
455	Parkinson, R., Jarvis, R.R. 3	Cotswold.	.....	.....	169	.....	.....	7	82	46
456	Parsons, Geo. W., Cayuga, R.R. 2	.....	.....	.....	54	.....	.....	16	113	69
457	Parsons, H. R., Cayuga, R.R. 2	.....	18	.....	10	63	.....	1	119	72
458	Peacock, Herb., Jarvis	Grade.	32	.....	13	14	.....	1	105	64
459	.....	.....	81	.....	31	.....	.....	8	76	47
460	.....	.....	.....	.....	16	.....	.....	9	138	79
461	.....	.....	.....	.....	9	.....	.....	11	101	55
462	.....	.....	.....	.....	.....	.....	.....	5	43	25
463	.....	.....	.....	.....	.....	.....	.....	68	539*	345
464	.....	.....	.....	.....	.....	.....	.....	10	192	107
465	.....	.....	.....	.....	.....	.....	.....	8	68	42
466	.....	.....	.....	.....	.....	.....	.....	7	50	32
467	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
468	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
469	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
470	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

* Indicates some washed wool included.

HALDIMAND COUNTY.—Continued.

Cheque No.	Name and Address.	Breed.	Fine Medium Combing.	Medium Combing.	Medium Clothing.	Low Medium Combing.	Coarse Combing.	Lustr Combing.	Rejections.	Gray and Black.	Locks and Pieces.	Tags.	Total.	Dr. Expenses.	Credit. Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	\$ c.	\$ c.
471	Short, W. J., Sr., Hagersville, R.R. 3	Oxford	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	264 65
472	Shoup, W. B., Hagersville, R.R. 4	Grade	.....	214	4	141	36	.....	.....	.....	.....	33	49	.....	41 49
473	Shuter, Jno., Jarvis, R.R. 1	Oxford	.....	251	.....	20	49	.....	.....	.....	.....	2	7	.....	181 22
474	Simington, Alfred, Hagersville, R.R. 1	Grade	.....	49	.....	15	.....	.....	.....	.....	.....	10	31	.....	39 71
475	Smith, Samuel, Hagersville, R.R. 3	Leicester	.....	.....	.....	9	.....	.....	9	.....	.....	5	8	.....	26 42
476	Stewart, N. A., Canfield	Grade	.....	.....	.....	.....	38	.....	.....	.....	.....	.....	47	.....	123 69
477	Sutor, R. C., S. Cayuga	Leicester	.....	148	3	19	11	.....	.....	7	.....	5	25	.....	66 31
478	Slack, J. A., Hagersville, R.R. 4	Grade	.....	.....	.....	7	72	.....	.....	.....	.....	5	13	.....	46 44
479	Stringer, M. H., Attercliffe	Grade	.....	33	.....	93	.....	.....	.....	.....	.....	.....	8	.....	81 06
480	Teasdale, Whit., Cayuga, R.R. 1	Grade	.....	50	.....	7	70	.....	.....	.....	.....	15	17	23	82 03
481	Toohy, Patrick, Cayuga	.....	.....	47	.....	50	30	.....	.....	14	.....	6	16	.....	82 05
482	Topp, Everett, Canfield, R.R. 1	.....	.....	14	.....	94	.....	.....	.....	.....	.....	.....	16	.....	75 77
483	VanLoon, W., Hagersville	Grade	.....	.....	.....	49	103	.....	.....	.....	.....	2	17	.....	91 06
484	Walker, Morton, Cayuga, R.R. 1	Grade	.....	18	.....	97	.....	.....	.....	.....	.....	4	12	.....	74 89
485	Walker, W. E., Canfield, R.R. 1	Shropshire	.....	26	.....	30	7	.....	.....	.....	.....	3	9	.....	41 27
408	Waterbury, W. H., Selkirk	Shropshire	.....	72	.....	.....	.....	.....	.....	.....	.....	.....	9	.....	48 00
412	Waterbury, Watt. M., Selkirk, R.R. 1	Grade	.....	31	.....	.....	.....	.....	.....	.....	.....	.....	10	.....	55 24
413	Werner, Milton, Selkirk	Grade	.....	52	.....	202	85	.....	.....	.....	.....	25	41	.....	218 93
416	Wilkins, M. J., Jarvis, R.R. 3	Grade	.....	72	.....	.....	7	.....	.....	.....	.....	2	12	.....	52 55
425	Winger, Geo., Cayuga, R.R. 3	Leicester	.....	.....	.....	.....	51	.....	17	.....	.....	.....	7	.....	37 95
433	Winger, Wm. E., Hagersville, R.R. 1	Leicester	.....	.....	.....	8	35	9	.....	.....	.....	.....	6	.....	30 43
454	Wardell, Irvin, Cayuga, R.R. 2	.....	.....	35	.....	50	.....	.....	.....	.....	.....	1	9	.....	55 47
435	Young, Harry, Caledonia, R.R. 4	Shropshire	.....	93	.....	.....	.....	.....	.....	.....	.....	1	12	23	62 03
437	Young, Lloyd A., Cayuga, R.R. 5	.....	.....	45	.....	66	.....	.....	.....	22	.....	4	17	.....	83 35
			31	2,486	62	2,656	3,912	84	95	55	5	259	1,109	2 22	5,860 49

HALIBURTON COUNTY.

Cheque No.	Name and Address.	Breed.	Fine Medium Combing.	Medium Combing.	Medium Clothing.	Low Medium Combing.	Coarse Combing.	Lustr Combing.	Rejections.	Gray and Black.	Locks and Pieces.	Tags.	Total.	Dr. Expenses.	Credit. Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	\$ c.	\$ c.
487	Rowley, Fred. L., Highland Grove	.....	.....	23	.....	15	.....	.....	.....	.....	.....	3	6	79	24 89

HALTON COUNTY.

488	Agar, T., Palermo	.....	.....	.....	141	.....	75	48	8	.....	.....	.....	32	272	.....	174 04
489	Alton, J. C., Freeman, R.R. 1	.....	Shropshire	.....	131	.....	81	42	.....	.....	.....	.....	31	254	.....	168 91
490	Beardmore & Co., Acton West	.....	.....	.....	96	.....	64	.....	.....	.....	.....	.....	19	160	.....	104 80
491	Bennett, Jno. H., Acton West, R.R. 1	.....	.....	.....	39	.....	123	.....	.....	.....	11	.....	19	173	.....	107 30
492	Biggar, Robt., Milton, R.R. 4	.....	Oxford	.....	49	.....	213	.....	.....	.....	.....	.....	32	262	23	168 24
493	Biggar, Robert, Milton, R.R. 4	.....	Oxford	.....	7	.....	.....	.....	.....	.....	.....	.....	1	7	.....	4 67
494	Brain, Walter M., Norval	.....	Leicester	.....	10	.....	75	90	.....	.....	.....	.....	21	175	.....	106 29
495	Cole, Wm., Georgetown, R.R. 1	.....	.....	.....	.....	.....	6	80	.....	.....	.....	.....	9	86	.....	49 88
496	Cole, Wm., Limehouse	.....	.....	.....	.....	.....	17	61	.....	.....	.....	.....	8	78	58	45 38
497	Campbell, Geo. C., Georgetown	.....	.....	.....	5	.....	64	22	.....	.....	.....	.....	14	91*	.....	71 69
498	Campbell, M., Milton	.....	Leicester	.....	.....	.....	.....	102	.....	21	.....	.....	15	123	.....	69 33
499 &																
500	Chapman, Francis, Malton	.....	.....	.....	96	.....	45	.....	.....	.....	10	.....	18	151	.....	95 32
501	Chisholm, L. W., Milton, R.R. 3	.....	.....	.....	57	.....	80	.....	.....	.....	.....	.....	18	137	.....	89 00
502	Cook, David, Georgetown, R.R. 1	.....	.....	.....	.....	.....	6	150	.....	.....	.....	.....	23	156*	.....	122 90
503	Currie, Hume, Milton, R.R. 5	.....	Ox. & Lei.	.....	6	.....	32	63	.....	.....	.....	.....	12	101	.....	60 67
504	Dallton, Edwin, Tansley	.....	Leicester	.....	.....	.....	118	233	.....	.....	.....	.....	50	351	.....	209 37
505	Elliott, W. L., Kelso	.....	.....	.....	198	.....	84	.....	.....	.....	.....	.....	40	282	.....	185 55
506	Ford, D. F., Milton, R.R. 4	.....	Hampshire	.....	60	12	24	87	13	20	.....	.....	27	216	90	130 19
507	Fleming, R. D., Oakville, R.R. 1	.....	Shropshire	.....	65	.....	40	9	.....	.....	3	.....	12	117	.....	74 80
508	Foster, W. W., Campbellville, R.R. 3	.....	Leicester	.....	47	.....	27	.....	.....	151	.....	.....	24	225	.....	124 80
509	Galbraith, J. H., Malton, R.R. 4	.....	.....	.....	66	.....	9	.....	.....	8	.....	.....	12	83	.....	53 45
510	Gilbertson, D. J., Moffat, R.R. 1	.....	Oxford	.....	98	5	37	.....	.....	.....	.....	.....	14	140	.....	92 30
511 & 991	Govland, Geo. R., Milton, R.R. 6	.....	Oxford	.....	56	.....	120	.....	.....	.....	.....	.....	19	176	.....	113 84
512	Henry, W. J., Hornby	.....	Leicester	.....	.....	.....	37	150	.....	.....	5	.....	16	192	23	111 02
513	Heslop, Arthur, Freeman, R.R. 2	.....	.....	.....	109	.....	30	.....	.....	.....	.....	.....	15	144	.....	93 06
514	Hume, Alex. D., Georgetown, R.R. 3	.....	Leicester	.....	60	.....	.....	72	.....	.....	.....	.....	7	72	.....	41 45
515	Inglehart, W. F., Palermo	.....	Shropshire	.....	36	20	.....	.....	.....	.....	3	.....	7	63	.....	40 78
516	King, Geo., Oakville, R.R. 1	.....	Leicester	.....	.....	.....	41	76	.....	.....	.....	.....	11	124	.....	71 73
517	Kitching, Colin C., Rockwood	.....	.....	.....	.....	.....	50	83	.....	53	.....	.....	16	150	.....	81 60
518 & 988	Lindsay Bros., Milton, R.R. 4	.....	Grade	.....	19	.....	9	180	.....	.....	5	.....	20	235	.....	137 20
519	McAlpine, Jno., Campbellville	.....	Cotswold	.....	.....	.....	7	160	.....	.....	.....	.....	3	28	.....	17 85
520	Macartney, Wm. H., Milton West, R.R. 1	.....	Oxford	.....	46	.....	53	.....	.....	.....	4	.....	13	167	70	95 88
521	Marshall, Robt., Moffat, R.R. 1	.....	Oxford	.....	14	.....	66	14	.....	.....	.....	.....	13	103	.....	65 49
522	Menzies, Robt. L., Kelso	.....	.....	.....	945	.....	377	172	.....	531	.....	.....	8	94	.....	59 47
523	Noble, R. T., Norval	.....	Grade	.....	23	.....	367	39	.....	.....	.....	.....	340	2,459	.....	1,358 31
524	Preston, Jas. M., Georgetown, R.R. 3	.....	.....	.....	49	.....	70	.....	.....	.....	.....	.....	48	429	23	271 54
525	Ramsay, A. E., Campbellville, R.R. 1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14	119	.....	77 30
526	Rumney, Wm., Freeman, R.R. 1	.....	.....	.....	.....	.....	.....	205	.....	30	.....	.....	28	235	.....	133 17
527	Robertson, C. H., Milton, R.R. 3	.....	.....	.....	.....	.....	32	163	.....	.....	2	.....	21	197	.....	114 77

* Indicates some washed wool included.

HALTON COUNTY. —Continued.

Cheque No.	Name and Address.	Breed.	Fine Medium	Medium	Medium	Low	Coarse	Comb.	Comb.	Rejections.	Gray and Black.	Locks and Pieces.	Tags.	Total.	Dr. Expenses.	Credit. Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	fleeces	lbs.	\$ c.
528	Robertson, Jas. & Sons, Hornby	Dorset.	.....	.....	32	.....	.....	.....	.....	.....	.....	.....	.....	40	273	181 09
529	Ramsay, Jno. A., Campbellville	Grade.	237	4	10	.....	.....	.....	.....	.....	.....	.....	.....	15	114	75 70
530	Service, C. C., Milton, R.R. 3	Oxford	104	.....	47	.....	.....	.....	.....	.....	.....	.....	.....	5	47	29 97
531	Simpson, Jno., Campbellville	Shropshire.	.....	.....	116	.....	.....	.....	.....	.....	.....	.....	.....	22	134*	102 74
532	Smith Bros., Oakville, R.R. 2	Shropshire.	.....	.....	42	.....	.....	.....	.....	.....	.....	.....	.....	24	244	145 98
533	Smith, S. C., Rockwood, R.R. 3	Grade.	18	.....	13	.....	.....	.....	.....	.....	.....	.....	.....	5	32	20 55
534	Stark, A. N., Georgetown, R.R. 3	Grade.	50	.....	100	10	.....	.....	.....	.....	.....	.....	.....	17	160	102 85
535	Stevenson, P. W., & Son, Palermo	Grade.	45	34	8	.....	.....	.....	.....	.....	.....	.....	.....	14	102	65 68
536	Stevenson, Roy, Milton West	Grade.	47	.....	53	.....	.....	.....	.....	.....	.....	.....	.....	15	138	86 40
537	Taylor, D. H., Moffat, R.R. 1	Leicester.	.....	.....	112	.....	.....	.....	.....	.....	.....	.....	.....	3	12	158 22
538	Thompson, Walter, Georgetown	Grade.	55	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	27	257	170 10
539	Thomas, W. D., Campbellville	Grade.	.....	.....	7	.....	.....	.....	.....	.....	.....	.....	.....	6	50	29 22
540	Utter, W. F., Freeman, R.R. 2	Leicester.	.....	.....	82	.....	.....	.....	.....	.....	.....	.....	.....	21	183	112 84
541	Walker, P. M., Milton West	.....	30	.....	91	.....	.....	.....	.....	.....	.....	.....	.....	33	174	111 71
542	Walker, W. R., Milton, R.R. 6	.....	65	.....	18	.....	.....	.....	.....	.....	.....	.....	.....	29	251	153 30
543	Wilson, Henry, Georgetown, R.R. 2	Shr. & Ox.	.....	.....	58	.....	.....	.....	.....	.....	.....	.....	.....	11	100	57 57
544	Wood, C. E., Freeman	Leicester.	.....	.....	118	.....	.....	.....	.....	.....	.....	.....	.....	21	185	106 50
545	Wood, E. R., Freeman, R.R. 2	Leicester.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
			3,425	156	3,183	3,278	97	863	63	15	488	1,390	11,568	3	47	7,020 37

HASTINGS COUNTY.

Cheque No.	Name and Address.	Breed.	Fine Medium	Medium	Medium	Low	Coarse	Comb.	Comb.	Rejections.	Gray and Black.	Locks and Pieces.	Tags.	Total.	Dr. Expenses.	Credit. Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	fleeces	lbs.	\$ c.
546	Bird, R. N., Stirling	Cotswold.	.....	.....	35	.....	.....	.....	.....	.....	.....	.....	.....	19	156	89 90
547	Heath, C. W., Stirling	.....	.....	.....	12	.....	.....	.....	.....	.....	.....	.....	.....	17	160	95 73
548	Heath, W. H., Stirling	.....	.....	.....	16	.....	.....	.....	.....	.....	.....	.....	.....	9	74	44 55
549	Hagerman, Jno. B., Harold, R.R. 1	Grade.	.....	.....	278	.....	.....	.....	.....	.....	.....	.....	.....	5	30	21 83
550	McLean, Matt. M., Detlor	Grade.	.....	.....	13	.....	.....	.....	.....	.....	.....	.....	.....	30	278*	183 63
551	Meiklejohn, S. G., Bellevue	.....	.....	.....	58	.....	.....	.....	.....	.....	.....	.....	.....	4	31	18 43
552	Snarr, F. C., Harold, R.R. 2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25	231	133 56
553	Wells, Chas., Marmora	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16	98	59 81
			412	164	424	37	.....	.....	.....	.....	.....	.....	.....	125	1,058	647 44

KENT COUNTY.—Continued.

Cheque No.	Name and Address.	Breed.	Fine Medium Combing.	Medium Combing.	Medium Clothing.	Low Medium Combing.	Coarse Combing.	Lustr Combing.	Rejections.	Gray and Black.	Pieces and Locks	Tags.	Total.			Dr. Expenses.	Credit. Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	fleeces	lbs.	\$ c.	\$ c.	
579	Buchanan, Daniel, Thamesville	Grade.....	.....	.....	.....	.....	130	.....	.....	.....	.....	5	15	135	.....	76 15	
580	Burk, B. G., Blenheim	Shropshire	.....	.....	.....	.....	.....	.....	128	.....	.....	.....	13	128	23	64 41	
581	Cope, Jno. E., Blenheim, R.R. 1	Grade	.....	.....	.....	.....	59	.....	.....	.....	.....	.....	9	73	58	45 09	
582	Clapp, A. W., Dresden, R.R. 1	Grade	.....	.....	.....	.....	74	.....	.....	.....	.....	.....	15	143	.....	86 97	
583	Clapp, J. B., Turnerville	Grade	.....	.....	.....	.....	151	.....	25	.....	.....	.....	27	278	.....	167 62	
584	Clapp, Dr. W., Dresden	Grade	.....	.....	.....	.....	63	.....	35	.....	.....	4	46	410	23	235 98	
585	Clemence, Jno. H., Chatham	Grade	.....	.....	.....	.....	34	.....	.....	.....	.....	1	16	159	23	93 60	
586	Coutts, W. J., Tilbury, R.R. 1	Grade	.....	.....	.....	.....	61	.....	.....	.....	.....	.....	12	107	.....	93 60	
587	Dolson, W. J., Chatham, R.R. 7	Grade	.....	.....	.....	.....	16	.....	.....	.....	.....	.....	12	132	23	76 75	
588	Dreury, Clifford, Blenheim, R.R. 6	Grade	.....	.....	.....	.....	48	.....	.....	.....	.....	.....	6	55	.....	32 30	
589	Forbes, Harry, Tupperville	Lincoln	.....	.....	.....	.....	69	.....	.....	.....	.....	.....	5	69	.....	39 72	
590	Foster, Gus., Coatsworth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12	99	23	65 04	
591	Foxton, Geo., Merlin	Grade	.....	.....	.....	.....	108	.....	8	.....	.....	10	56	544	23	315 94	
592	French, H. J., Dresden, R.R. 3	Grade	.....	.....	.....	.....	140	.....	9	.....	.....	.....	20	184	23	115 09	
593	Fretz, Isaac, Thamesville	Grade	.....	.....	.....	.....	688	.....	72	.....	.....	.....	56	760	.....	432 21	
594	Gleeson, M., Fletcher	Grade	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25	215	23	143 30	
595	Gilbuly, T. H., Merlin	Ox. & Lin.	.....	.....	.....	.....	37	.....	.....	.....	.....	.....	25	215	23	111 96	
596	Gosnell, A. L., Merlin	Grade	.....	.....	.....	.....	36	.....	.....	.....	.....	.....	14	128	23	75 38	
597	Huff, R. R., Chatham, R.R. 5	Oxford	.....	.....	.....	.....	31	.....	.....	.....	.....	.....	31	128	23	248 26	
598	Hutton, Chris., Blenheim	.....	.....	.....	.....	.....	212	.....	.....	.....	.....	.....	38	382	23	248 26	
599	Kimble, Frank, Merlin	.....	.....	.....	.....	.....	49	.....	.....	.....	.....	.....	4	49	.....	105 91	
600	Langstaff, Alfred, Tupperville	Oxford	.....	.....	.....	.....	.....	.....	204	.....	.....	11	21	215	.....	102 10	
601	Langstaff, J. M., Tupperville, R.R. 3	Lincoln	.....	.....	.....	.....	40	.....	.....	.....	.....	.....	18	156	.....	115 23	
602	Lawrence, T. Alex., Thamesville	Grade	.....	.....	.....	.....	36	.....	.....	.....	.....	3	17	195	23	272 95	
615	Lee, H. M., Highgate	.....	.....	.....	.....	.....	160	.....	19	28	.....	.....	225	463	1 86	369 75	
603	McGregor, M. A., Chatham, R.R. 7	Grade	.....	.....	.....	.....	635	.....	.....	.....	.....	30	37	665	.....	65 18	
604	McKnight, C., Chatham	Shropshire	.....	.....	.....	.....	23	.....	.....	.....	.....	.....	10	103	23	25 02	
605	McEwen, Alex., Merlin	Lincoln	.....	.....	.....	.....	46	.....	50	.....	.....	.....	8	50	23	82 52	
606	McGregor, Jas. E., Tilbury	Grade	.....	.....	.....	.....	87	.....	.....	.....	.....	.....	14	138	23	51 63	
607	McTavish, A. J., Blenheim	.....	.....	.....	.....	.....	22	.....	.....	.....	.....	.....	11	81	.....	114 37	
608	Mancell, Geo., Merlin, R.R. 1	.....	.....	.....	.....	.....	66	.....	.....	.....	.....	.....	22	178	.....	49 93	
609	Mowbray, Glen., Thamesville	.....	.....	.....	.....	.....	88	.....	.....	.....	.....	.....	9	88	73	121 34	
610	Prangley, G. B., Dawn Mills	Grade	.....	.....	.....	.....	155	.....	42	.....	.....	.....	9	19	202	112 03	
611	Radmore, Miss Mary, Merlin, R.R. 3	Grade	.....	.....	.....	.....	172	.....	.....	.....	.....	.....	13	181	.....	112 03	
			26	14	4	.....	5	.....	1	.....	.....	.....	10	54	23	34 15	

612	Shaw, E. L., Tilbury	Grade.....	15	95	11	9	12 130	.....	79 26
613	Stover, W. A., Tupperville, R.R. 3	Grade.....	19	45	20 .....	.....	10 84	.....	52 87
1528 & 614	Waugh, J. S., Chatham	Grade.....	35	22	89	9	19 180	23	101 41
			26	895	136	2,139	4,264	.....	4,970 04

L.S.B.

LAMBTON COUNTY.

616	Annett, Walter, Watford, R.R. 3	Cotswold.....	.....	7	279	.....	23	286	23	163 45
617	Annett, W. B., Alvinston	Dorset.....	5 .....	.....	25 .....	.....	5	52	.....	28 84
618	Beattie, Wm. E., Mandaumin	Grade.....	60 .....	.....	.....	.....	2	62	23	40 29
619	Brown, Wm., Alvinston, R.R. 2	Grade.....	.....	42	46	.....	8	88	.....	53 28
620	Burr, John F., Brigden .....	.....	112	15	39	.....	.....	21	166	106 68
621	Carroll, E., Watford, R.R. 3 .....	.....	.....	.....	68	.....	9	77	.....	41 10
622	Doan, Wesley, Alvinston, R.R. 2	Dorset.....	48 .....	.....	.....	.....	8	48	.....	32 00
623	Edward, Wm., Brigden	Grade.....	64	350	8	.....	5	427	.....	271 69
624	Elliott, Jas. W., Florence, R.R. 2	Shropshire ..	110 .....	.....	.....	.....	.....	15	110	73 33
625	Forbes, Alex. H., Corunna, R.R. 1	Leicester.....	.....	12	70	.....	15	159	.....	91 54
626	Ferguson, Archie, Wyoming, R.R. 2	Dorset.....	10	7	46	.....	7	68	23	40 57
627	Ferguson, Jno., Camlachie	Shr. & Leil. ..	108 .....	.....	.....	.....	17	115	.....	76 46
628	Ferguson, Duncan, Wyoming, R.R. 2	Hampshire ..	66 .....	.....	.....	.....	11	66	.....	44 00
629	Finch, J. G., Mandaumin	Grade.....	.....	20	45	.....	4	69	23	39 48
630	Fisher, A. A., Alvinston	Lincoln.....	.....	7	91	.....	7	91	.....	52 39
631	Fisher, D. L., Alvinston	Shropshire ..	11 .....	.....	.....	30	.....	6	48	26 72
997	Forman, R. R., Alvinston .....	.....	.....	.....	85	.....	.....	7	85	48 93
633	Galloway, Thos., Brigden, R.R. 1 .....	.....	.....	80	35	.....	5	53	.....	30 21
634	Gilroy, H. A., Alvinston .....	.....	.....	38	60	.....	12	115	.....	71 15
635	Graham, Edward, Oil Springs, R.R. 1	Grade.....	.....	.....	125	.....	11	98	.....	58 77
636	Graham, Jno., Oil Springs	Lincoln.....	15	5	458	88	52	551	23	317 29
637	Hair, Jas. A., Watford, R.R. 7	Grade.....	.....	.....	96	.....	8	357	.....	55 27
638	Hicks, Chas., Alvinston	Dorset.....	335	18	.....	.....	45	357	1 19	236 30
639	Hunter, Hugh M., Petrolia, R.R. 3	Grade.....	.....	.....	167	.....	16	167*	.....	129 02
640	Jardine, Wm., Camlachie	Cotswold.....	.....	29	435	.....	51	529	23	301 19
641	Lawrence, Chas. M., Dresden	Grade.....	5 .....	.....	.....	.....	23	148	23	97 83
642	Leith, Nell, Mandaumin	Dorset.....	141	5	.....	32	5	36	.....	23 39
643	McLean, John G., Alvinston, R.R. 2	Grade.....	15	21	.....	20	28	193	.....	118 47
644	McLean, John G., Camlachie, R.R. 1 .....	.....	36	89	48	.....	28	35	.....	168 48
645	McDonell, Chas. E., & Son, Beacher .....	.....	.....	108	159	16	35	283	.....	41 23
646	McGregor, P. D., Alvinston, R.R. 2	Grade.....	28	19	5	.....	1	53*	.....	185 97
647	McGregor, Roy, Alvinston, R.R. 3	Grade.....	.....	22	275	21	7	325	23	89 61
			.....	26	120	9	16	155	23	.....

* Indicates some washed wool included.

LAMBTON COUNTY.—Continued.

Cheque No.	Name and Address.	Breed.	Fine Medium Combing.	Medium Combing.	Medium Clothing.	Low Medium Combing.	Coarse Combing.	Lustr Combing.	Rejections.	Gray and Black.	Locks and Pieces.	Tags.	Total.	Dr. Expenses.	Credit. Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	\$ c.	\$ c.
648	McLachlan, Nichol, Alvinston, R.R. 2	Grade.....					295						21	23	169 60
649	McVicar, Nevin N., Alvinston, R.R. 2	Grade.....				8	95						10		59 79
650	Marsh, J. H., Mooretown, R.R. 1	Grade.....										7	19	84	101 83
651	Maddock, D. G., Alvinston, R.R. 7	Grade.....		69			50	66					11	66	69 21
652	Milliken, Norman, Tupperville, R.R. 2	Shropshire.		156		18	6	98					23		115 46
653	Miner, Chas., Petrolia, R.R. 1	Grade.....				7	115					1	10		60 51
654	Nicol, Geo., Brigden	Grade.....											14	73	69 94
655	Nisbet, C. S. H., Mooretown	Ox. & Shr.		148		50	63						25		130 30
656	O'Brien, Wm., Alvinston	Grade.....		32			25	34		59			15	23	84 78
657	Palmer, A. G., Florence	Grade.....											6		34 23
658	Pedlar, Jonah H., Brigden	Grade.....		10		42	60		20			9	20		80 45
659	Pettit, Alex., Brigden, R.R. 2	Leicester.		53		34	7				5		18		75 77
660	Radford, Mrs. Mary, Brigden, R.R. 1	Grade.....				22	122						18		84 26
661	Roane, W. H., Brigden, R.R. 2	Grade.....					15						2		8 64
662	Robertson, Jno., Wyoming, R.R. 3	Shropshire.	21	222	9								47	23	168 06
663	Sands, Fred. D., Tupperville, R.R. 2	Grade.....				50	173						24		131 47
664	Sands, Jno., Corunna	Grade.....		7		17	74						10		57 88
665	Sercombe, Jno., Theford, R.R. 2	Grade.....				60	85					1	15	58	86 88
666	Shortt, Geo. W., Brigden, R.R. 1	Leicester.		65		41	263						52		220 88
667	Trussler, S. W., Camlachie	Grade.....		32		40	24	29					15		77 35
668	Wordsworth, T. F., Watford	Grade.....					78		16				6		52 98
669	Welch, Jas. E., Petrolia, R.R. 1	Oxford.		6		242							28	23	153 06
670	Wheeler, Arthur, Brigden, R.R. 1	Grade.....		48	15	30	19						16		72 22
671	Wilson, Fred., Camlachie, R.R. 1	Cotswold.		24		56	1,921	45					248		1,320 22
672	Wray Bros., Corunna	Grade.....		6		132	213		7			10	40	23	229 46
673	Young, F. W., Courtwright	Ox., Lei. & Cotswold.		294		94	57		70				56	23	323 85
674	Young, R. W., Brigden	Grade.....		37		95							15		85 23
675	Zavitz, G. D., Alvinston, R.R. 7	Grade.....				10	104	45				6	14		93 73
			21 2,378	33	12,125	6,810	330	254	103	7	56	1,386	12,117	8 14	7,459 93

MANITOULIN.

Cheque No.	Name and Address.	Breed.	Fine Medium Combing.	Medium Combing.	Medium Clothing.	Low Medium Combing.	Coarse Combing.	Lustr Combing.	Reflections.	Gray and Black.	Locks and Pieces.	Tags.	Total.	Dr. Expenses.	Credit. Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	\$ c.	\$ c.
695	Beatty, Gordon, Manitowaning	Grade	41	116	36	64	42	22	153	6	25	21	153	93	89
696	Eade, Wm., Little Current	Grade	116	36	64	206	82	53	423	25	25	53	423	255	51
697	Fraser, R., Kagawong	Grade	36	116	121	160	9	26	205	7	31	244	205	130	96
698	Hughson, A. C., Manitowaning	Grade	70	Manitowaning	40	330	128	45	355	2	17	112	355	72	69
699	Hughson, Geo., Manitowaning	Grade	5	Perivale	6	51	128	51	185	23	185	110	20	211	54
700	Johnston, D. C., Perivale	Grade	6	Manitowaning	39	39	127	22	173	101	52	101	52	101	52
701	Mogey, Robt., Manitowaning	Grade	13	Wm., Manitowaning	36	192	100	6	228	24	228	133	49	133	49
702	Noquay, Thos., Manitowaning	Cotswold	60	Grade	33	85	85	21	188	1	45	111	95	162	48
703	Phillip, Jas. R. W., Manitowaning	Grade	341	881	13	10	40	320	2,512	7	30	1,529	99	1,529	99
704	Third, Wm., Manitowaning	Grade	341	881	13	10	40	320	2,512	7	30	1,529	99	1,529	99
705	Wilkin, Jas., Little Current	Grade	341	881	13	10	40	320	2,512	7	30	1,529	99	1,529	99

MIDDLESEX COUNTY.

Cheque No.	Name and Address.	Breed.	Fine Medium Combing.	Medium Combing.	Medium Clothing.	Low Medium Combing.	Coarse Combing.	Lustr Combing.	Reflections.	Gray and Black.	Locks and Pieces.	Tags.	Total.	Dr. Expenses.	Credit. Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	\$ c.	\$ c.
706	Amos, J. H., Ailsa Craig, R.R. 2	Grade	70	180	13	23	13	23	13	23	13	23	13	148	26
707	Amos, J. L., Ailsa Craig, R.R. 2	Grade	13	163	33	13	13	13	13	13	13	13	13	93	84
708	Anderson, Wm., Wilton Grove, R.R. 1	Lincoln	232	60	19	19	19	19	19	19	19	19	19	188	93
709	Amos, Oliver, Parkhill, R.R. 8	Southdown	285	8	8	285	8	285	8	285	8	285	8	168	11
710	Baker, J. P., Lambeth, R.R. 3	Grade	97	212	36	10	10	10	10	10	10	10	10	69	76
711	Brock, Jno., Thorndale	Grade	83	14	14	83	14	83	14	83	14	83	14	169	80
712	Cunningham, Jos., Thorndale	Grade	56	125	13	13	13	13	13	13	13	13	13	63	66
713	Drummond, J. D., Ailsa Craig, R.R. 3	Lincoln	77	2,596	309	10	10	10	10	10	10	10	10	78	53
714	De Gex, E. H., Kerwood	Shropshire	6	125	13	13	13	13	13	13	13	13	13	1,730	31
715	Fisher, M. W., Glanworth	Oxford	22	307	173	144	144	144	144	144	144	144	144	78	08
716	Galbraith, Bernie, Appin	Oxford	45	30	173	144	144	144	144	144	144	144	144	131	78
717	Goulding Bros., Ilderton	Oxford	30	173	144	144	144	144	144	144	144	144	144	177	56
718	Haskett, J. W., Denfield, R.R. 4	Oxford	164	29	29	164	29	164	29	164	29	164	29	121	12
719	Harrison, Fred., Ailsa Craig	Oxford	164	29	29	164	29	164	29	164	29	164	29	82	90
720	Hobbs, Robt., Thorndale	Shropshire	62	164	29	164	29	164	29	164	29	164	29	127	82
	Howe, I. N., Mossley, R.R. 2	Shropshire	62	164	29	164	29	164	29	164	29	164	29	41	10

NIPissing DISTRICT.

787	Anderson, Jno., Powassan, R.R. 1	Grade.	151	64	9	9	5	30	238	152 14
788	Bray, G. J., Milberta	.....	19	58	.....	.....	4	10	81	50 46
789	Carswell & Son, D., Cache Bay	.....	65	.....	.....	.....	12	11	77	46 25
790	Ducharme, A., Verner, R.R. 1	Grade.	18	54	20	27	.....	13	119	69 58
791	Demonstration Farm, Monteith	.....	127	6	.....	33	8	27	215	141 14
792	Gallagher, Jno., Powassan	Grade.	61	33	.....	.....	11	12	105	64 59
793	Graf, Francis, Powassan, R.R. 4	Shropshire.	35	168	7	.....	3	29	213	135 26
794	Gibb, Herbert, Milberta	.....	.....	.....	.....	374	.....	42	374	188 64
799	Jardine, J. H., Powassan	.....	123	9	52	.....	12	26	196	120 82
796&995	Jarvis, J. W., McCool	.....	262	9	.....	.....	.....	35	271	180 16
795&993	Owens, P. R., Powassan, R.R. 4	Grade.	118	.....	.....	.....	16	16	134	82 82
797	Patterson & Laidlaw, Powassan	.....	746	415	100	9	34	197	1,315	837 94
	Skinner, H. J., & Son, Powassan, R.R. 4	.....	.....	160	137	.....	3	47	300	181 67
		.....	1,725	41	976	416	108	495	3,638	2,251 47

NORFOLK COUNTY.

800	Alexander, Bruce, Langton	.....	57	28	.....	.....	.....	7	85	55 85
801	Aitkin, A. E., Simcoe, R.R. 2	.....	53	77	.....	.....	.....	7	53	35 33
802	Austin, Judson, Simcoe, R.R. 5	.....	.....	34	174	.....	.....	10	77	49 10
803	Baker, John, Simcoe	Leicester.	.....	.....	.....	.....	.....	22	208	121 62
804	Barrett, T. B., Port Dover, R.R. 1	Shropshire.	162	.....	.....	.....	11	19	181	117 85
805	Bowyer, Wm. A., Simcoe, Box 27	Shropshire.	8	13	18	.....	.....	12	82	52 66
806	Collver, Frank F., Vittoria	Grade.	51	45	430	37	20	41	532	298 69
807	Cook, A. W., Vittoria	Grade.	52	.....	.....	.....	.....	6	52	34 66
808	Culver, Frank L., Waterford, R.R. 3	Shropshire.	62	4	9	.....	5	9	80	50 86
809	Dedrick, A. J. C., Port Rowan	Grade.	84	10	36	.....	.....	17	130	84 67
810	Doan, F., Simcoe, R.R. 3	Grade.	145	4	.....	.....	.....	21	149	99 36
811	Dunkin, Chas. A., Vittoria, R.R. 1	Shropshire.	63	22	.....	.....	.....	9	85	56 88
812	Dunlop, Jas., Scotland, R.R. 1	Leicester.	.....	134	32	.....	.....	17	166	95 34
813	England, T. E., Port Dover, R.R. 2	.....	74	.....	.....	.....	4	9	78	50 38
814	Hancock, S. R., Simcoe	Grade.	107	30	.....	.....	.....	23	137	91 64
815	Haviland, W. H., Delhi	Grade.	140	115	18	6	15	31	294	183 97
816	Hendershott, D. L., Wilsonville	.....	73	.....	.....	.....	.....	9	73	48 66
817	Horn, Jas., & Son, Port Dover, R.R. 1	Shropshire.	65	8	.....	.....	6	12	114	73 46
818	Hunter, Wm. H., Langton	Grade.	70	93	23	.....	.....	19	186	119 20
819	Lawrence, J. H., Vittoria	Shr. & Lei.	60	.....	36	6	.....	12	102	63 75
820	Massecar, Harry, Waterford	.....	86	.....	.....	.....	.....	13	86	57 10

NORFOLK COUNTY.—Continued.

Cheque No.	Name and Address.	Breed.	Fine Medium Combing.	Medium Combing.	Medium Clothing.	Low Medium Combing.	Coarse Combing.	Lustre Combing.	Rejections.	Gray and Black.	Locks and Pieces.	Tags.	Total.	Dr. Expenses.	Credit. Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	fleeces	lbs.	\$ c.
822	Murton, Eric M., Waterford	Grade.	101	80	13	13	26	181	23	118 10	23	23	118 10	23	\$ c.
824	Oakes, Henry, Vittoria, R.R. 1	Grade.	75	13	13	13	13	13	9	60 07	58	58	60 07	58	172 07
823	Petheram, David, Villa Nova	Grade.	90	168	105	105	105	105	9	69 76	23	23	69 76	23	44 43
825	Riddle, Frank, Wilsonville, R.R. 1	Shropshire.	105	105	105	105	105	105	9	31 276	23	23	31 276	23	172 00
826	Roberts, Jos., Scotland, R.R. 4	Shropshire.	67	87	64	64	64	64	33	16 163	73	73	16 163	73	96 01
827	Ryerse, W. Arthur, Port Dover	Grade.	116	39	115	9	115	9	1	23 19 81	23	23	23 19 81	23	28 92
828	Schilz, Peter, Vittoria	Grade.	63	115	115	9	115	9	6	25 77	23	23	25 77	23	89 99
829	Schuyler, Frank, Simcoe, Box 441	Shropshire.	25	25	25	25	25	25	40	35 59	23	23	35 59	23	55 79
830	Stackhouse, Chas., St. Williams, R.R. 2	Leicester.	25	12	12	6	12	6	37*	56 22	23	23	56 22	23	15 10
831	Stackhouse, Thos. C., St. Williams, R.R. 2	Grade.	10	5	18	18	18	18	33*	12 117	23	23	12 117	23	76 69
832	Stackhouse, Lorne, St. Williams, R.R. 1	Grade.	135	62	62	62	62	62	1	56 26	58	58	56 26	58	3,142 43
833	Smyth, J. F., Simcoe, R.R. 3	Grade.	53	48	48	48	48	48	40	578 4,970	58	58	578 4,970	58	
834	Strickler, J. A., Wilsonville, R.R. 1	Southdown.	80	80	80	80	80	80	11						
835	Thompson, J. H., Port Dover	Shropshire.	23	23	23	23	23	23	11						
836	Veit, Wm. G., Lynnville, R.R. 1	Shropshire.	80	80	80	80	80	80	11						
837	Wesbrook, C. H., Scotland, R.R. 1	Shropshire.	23	23	23	23	23	23	11						
838	Wilson, A. B., Wilsonville	Grade.	80	37	37	37	37	37	11						
839	Witham, Glen, Villa Nova	Oxford.	27	60	60	60	60	60	11						
821	Wells, Roy, Vittoria	Grade.	197 2,373	137	1,093	906	32	85	46	1	100	578 4,970	58	58	3,142 43

NORTHUMBERLAND COUNTY.

840	Black, F. A., Vernonville	Grade.	112	9	63	7	72	42 01
841	Calman, Thos., Vernonville	Grade.	7	106	18 112	18 112	18 112	74 66
842	Catton, Jno., Hoards Station	Grade.	35	34	15 140	15 140	15 140	78 16
843	Down, W. W., Hilton, R.R. 1	Grade.	25	7	12 74	12 74	12 74	48 01
844	Duncan, W. L., Colborne	Oxford.	4	127	8 59	8 59	8 59	34 17
845	Fisk, Harry, Vernonville	Grade.	11	23	18 157	18 157	18 157	96 73
846	Flindall, S. E., Brighton	Leicester.	11	23	25 243	25 243	25 243	133 56
847	Glover, Clarence, Morganstown	Grade.	11	23	6 40	6 40	6 40	24 44

848	Grills, Wm. S., Campbellford, Box 607	11	89	12	22	122	69 85
849	Hare, Geo. R., Cobourg, R.R. 5	66	100	21	...	176	113 51
850	Holdsworth, H. A., Cobourg, R.R. 4	148	61	26	8	217	139 42
851	Katcheson, R. C., Campbellford, R.R. 3	175	...	26	30	205	124 30
852	Lang, Arthur W., Cobourg, R.R. 4	...	42	20	1	189	108 54
853	Pegman, Jas., Vernonville	50	7	9	3	78	48 94
854	Rose, W. W., Colborne	165	24	39	...	228	151 05
855	Sherwin, A. O., Roseneath, R.R. 2	15	36	7	...	51	32 96
856	Smith, C. E., Vernonville	69	37	13	...	106	69 59
857	Smith, J. F., Cobourg, R.R. 6	...	72	12	2	99	53 61
858	Stevenson, A. H., Cobourg	246	...	23	27	273	169 39
859	Waldon, Jno. A., Gore's Landing	...	8	7	2	68	38 45
860	Westington, Marcus, Bewdley, R.R. 2	...	50	11	6	112	60 83
861	Westington, W. J., Cobourg, R.R. 6	...	235	21	7	242	137 13
862	Wilson, Wm., Dartford, R.R. 1	...	112	12	2	114	71 93
		35 1,104	70	368	121	3,177	1,921 24

ONTARIO COUNTY.

863	Annis, Chas., Pickering, R.R. 2	...	8	15	...	176	101 14
864	Batty, W. F., Brooklin	130	...	13	...	130	86 01
865	Bayne, Henry D., Whitby	160	...	29	6	196	127 36
866	Billett, Albert E., Fenelon Falls, R.R. 2	...	52	10	...	88	53 88
867	Burrows, Lloyd, Stouffville, R.R. 1	101	75	22	9	189	118 65
868	Cameron, Jno. H., Atherley, R.R. 2	...	32	10	...	107	63 58
869	Cameron, Neil, Sunderland	...	67	14	...	122	74 38
870	Chapman, F. M., 75 Hampton Av., Toronto	...	6	39	32	386	209 42
871	Christie, Peter, Manchester	175	66	31	...	256	163 88
872	Devitt, W. J., Locust Hill, R.R. 1	...	...	32	...	186	186 02
873	Duff, Robt., Myrtle	200	31	31	2	325	152 12
874	Dryden, W. A., Brooklin	261	10	36	...	271	180 52
879	Dunrobin Farms, Beaverton	83	147	72	...	503	302 89
875	Evans, I. M., Claremont	...	165	15	...	165	94 99
876	Fallis, A. J., Millbrook	...	149	13	...	149	85 78
877	Fallowdown, Andrew, Blackwater	...	9	7	...	74	42 41
878	Fleming, R. J., Pickering	...	53	36	...	436	255 08
880	Fralick, Clarence, Port Perry, R.R. 3	...	251	20	27	218	127 10
881	Glendenning, Hy. & Son, Manilla	186	51	27	...	186	123 99
883	Grey, Wm., Jr., Claremont, R.R. 2	...	137	12	...	139	78 61
883	Hall, R. E., Whitby	...	216	34	12	328	178 00
884	Honey Bros., Seagrove	...	179	15	5	184	104 15

* Indicates some washed wool included.

ONTARIO COUNTY.—Continued.

Cheque No.	Name and Address.	Breed.	Rejections.										Total.	Dr. Expenses.	Credit. Net.	
			Fine Medium Combing.	Medium Combing.	Medium Clothing.	Low Medium Combing.	Coarse Combing.	Lustr. Combing.	Reflections.	Gray and Black.	Locks and Pieces.	Tags.				
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	fleeces	lbs.	\$ c.	\$ c.	\$ c.	
885	Jackson, Wm. J., Scugog	Cotswold.....	.....	15	.....	15	.....	.....	.....	.....	28	272	.....	158 88	158 88	
886	Jones, Jos., Uxbridge	Shropshire.....	.....	.....	.....	.....	.....	.....	.....	.....	25	235	.....	127 46	127 46	
887	Lamb, Chas. E., Manchester	Shropshire.....	.....	58	.....	.....	.....	.....	.....	.....	7	58	.....	38 66	38 66	
888	Lamb, Jno., Fenelon Falls, R.R. 2 .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8	98	.....	56 42	56 42	
889	Lee, Geo., Greenbank	Cotswold.....	.....	.....	.....	.....	.....	.....	.....	.....	11	169	.....	91 78	91 78	
890	Lockie, J. H., Zephyr .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11	441	.....	2,440 38	2,440 38	
891	McDonald, Neil G., Port Perry, R.R. 1	Cotswold.....	1,097	1,097	1,513	1,202	107	.....	.....	.....	9	99	.....	56 99	56 99	
892	McLennan, Rev. J. McKee, Beaverton	Oxford .....	.....	135	.....	72	10	.....	.....	.....	25	224	.....	144 90	144 90	
893	McMillan, Maurice, Beaverton, R.R. 2	Grade .....	.....	45	.....	119	16	.....	.....	.....	23	186	.....	116 43	116 43	
894	McTaggart, D. L., Sonya	Grade .....	.....	.....	.....	214	.....	.....	.....	.....	19	224	.....	128 25	128 25	
895	Moore, W. H., Rouge	Leicester .....	.....	.....	.....	37	64	.....	.....	.....	17	186	.....	103 36	103 36	
896	Morrison, Jas. N., Beaverton	Oxford .....	.....	83	.....	255	.....	.....	.....	.....	40	338	.....	217 91	217 91	
897	Meyer, Jacob J., Zephyr	Grade .....	.....	56	.....	11	.....	.....	.....	.....	8	68	.....	44 60	44 60	
898	Phoenix, A. F., Greenbank	Cotswold.....	.....	.....	.....	195	.....	.....	.....	.....	19	195	.....	124 32	124 32	
899	Puckrin, Chas., Pickering, R.R. 1	Cotswold.....	.....	18	.....	26	32	.....	.....	.....	8	80	.....	48 05	48 05	
900	Reesor, Wm., Stouffville, R.R. 3	Shropshire.....	.....	204	.....	60	11	.....	.....	.....	31	214	.....	142 75	142 75	
901	Rilance, F. W., Beaverton	Grade .....	.....	48	.....	130	15	.....	.....	.....	12	119	.....	76 59	76 59	
902	Ross, D. A., Beaverton	Grade .....	.....	64	.....	180	95	.....	.....	.....	26	209	.....	134 18	134 18	
903	Seldon, Fred. J., Locust Hill, R.R. 1	Cotswold.....	.....	.....	.....	126	.....	.....	.....	.....	9	95	.....	54 23	54 23	
904	Sellers, Thos., Zephyr	Oxford .....	.....	59	.....	101	.....	.....	.....	.....	18	185	.....	119 66	119 66	
905	Smith, Geo., Port Perry, R.R. 2	Shropshire.....	.....	106	155	101	.....	.....	.....	.....	48	362	.....	237 57	237 57	
906	Thom, Wm., Pickering, R.R. 2	Grade .....	.....	.....	.....	8	131	.....	.....	.....	14	143	.....	81 57	81 57	
907	Underhill, Jas., Claremont	Vickery, J. F., Port Perry, R.R. 4 .....	.....	7	.....	8	1,926	.....	.....	.....	8	181	.....	1,109 57	1,109 57	
908	Ward, Evans, J. H., Claremont	Cotswold.....	.....	.....	.....	167	.....	.....	.....	.....	15	168	.....	96 40	96 40	
909	Wilkin, Jas., Myrtle Station, R.R. 1	Shropshire.....	.....	157	87	12	.....	.....	.....	.....	8	90	.....	51 81	51 81	
910	Weldon, W. H., Zephyr	Grade .....	.....	.....	.....	110	.....	.....	.....	.....	36	204	.....	173 29	173 29	
911	Will, Wm., Blackwater, R.R. 1	Grade .....	.....	.....	.....	29	58	.....	.....	.....	11	110	.....	63 33	63 33	
912	.....	Grade .....	.....	.....	.....	.....	.....	.....	.....	.....	8	87	.....	51 88	51 88	
			157	3,378	187	3,530	7,368	12	362	18	36	157	1,635	15,205	9,201 16	9,201 16

OXFORD COUNTY.—Continued.

Cheque No.	Name and Address.	Breed.	Fine Medium Combing.	Medium Combing.	Low Medium Combing.	Coarse Combing.	Lustrous Combing.	Rejections.	Gray and Black.	Locks and Pieces.	Tags.	Total.	Dr. Expenses.	Credit. Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	fleeces	lbs.	\$ c.
953	Martin, Jno. F., Princeton, R.R. 1	Grade	.....	127	7	.....	.....	.....	.....	.....	.....	16	134	\$ 89 12
954	Monk, Judson W., Springfield	Grade	.....	.....	.....	156	.....	.....	.....	.....	11	16	167	92 70
955	Ovington, Wm., Princeton	Grade	.....	92	12	.....	.....	.....	.....	.....	12	14	116	72 13
956	Park, Norman, Norwich	Cotswold	.....	.....	.....	360	.....	30	.....	.....	.....	31	390	222 40
957	Parker, F., Woodstock, R.R. 4	.....	.....	37	.....	.....	.....	.....	.....	.....	5	4	42	25 98
958	Parkhill, H. E., Burgessville, R.R. 1	Grade	.....	.....	.....	95	.....	.....	.....	.....	7	5	102	56 53
959	Pollard, Melvin, Norwich, R.R. 2	Grade	.....	.....	25	44	.....	.....	.....	.....	7	7	76	43 11
960	Rodger, David, Drumbo, R.R. 1	.....	.....	.....	49	266	.....	.....	.....	.....	.....	34	315	184 38
961	Ross, D. M., Embro	Grade	.....	131	4	.....	.....	.....	.....	.....	.....	24	186	118 05
962	Sibbick, Earl C., Princeton, R.R. 1	.....	.....	31	.....	.....	.....	.....	.....	.....	.....	5	31	20 66
963	Smart, Jas., Drumbo, R.R. 1	.....	.....	30	.....	.....	.....	.....	.....	.....	.....	5	30	20 00
964	Simmons, A. A., Thamesford, R.R. 1	Leicester	.....	.....	.....	42	.....	.....	.....	.....	.....	4	42	24 18
965	Simpson, Wm. J., Bright, R.R. 4	Grade	.....	.....	.....	96	.....	.....	.....	.....	.....	9	96	55 04
966	Stanton Bros., Princeton, R.R. 3	Shropshire	.....	80	.....	.....	.....	.....	.....	.....	.....	12	80	53 33
967	Sutherland, Donald, Ingersoll, R.R. 2	.....	.....	.....	.....	431	.....	.....	.....	.....	14	29	445	251 80
968	Sutherland, Wm. L., Thamesford, R.R. 3	Oxford	.....	15	.....	.....	.....	.....	.....	.....	3	2	18	10 34
969	Topham, W. C., Burgessville	.....	.....	13	.....	.....	.....	.....	.....	.....	.....	6	28	18 23
970	Vardon, F. W., Springfield	Shropshire	.....	209	44	.....	.....	.....	.....	.....	.....	33	283	175 03
971	Walker, Arthur J., Burgessville	.....	.....	.....	7	23	.....	.....	.....	.....	.....	3	30	17 71
972	Walker, Chas. E., Burgessville	Grade	.....	40	10	20	.....	.....	.....	.....	.....	8	70	44 55
973	Warner, J. Y., Norwich, R.R. 4	Grade	.....	16	.....	31	.....	.....	.....	.....	.....	6	47	28 51
974	Waud, Robt., Burgessville, R.R. 2	.....	.....	7	12	27	.....	.....	.....	.....	4	6	50	31 05
975	Wilson, Dorman, Norwich	Shropshire	.....	18	95	8	.....	25	.....	.....	10	20	165	101 10
976	Wilson, Robt. H., Richwood, R.R. 1	.....	.....	.....	36	34	.....	.....	.....	.....	.....	7	70	42 53
977	Youngs, A. F., Embro	Leicester	.....	.....	.....	121	.....	10	.....	.....	.....	12	131	74 71
			182,647	94	1,794	3,599	.....	478	13	.....	257	973	8,900	5,374 94

PARRY SOUND COUNTY.

Cheque No.	Name and Address.	Breed.	Fine Medium Combing.	Medium Combing.	Low Medium Combing.	Coarse Combing.	Lustrous Combing.	Rejections.	Gray and Black.	Locks and Pieces.	Tags.	Total.	Dr. Expenses.	Credit. Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	fleeces	lbs.	\$ c.
1001	Adams, Albert E., North Seguin	.....	.....	24	6	50	.....	.....	.....	.....	.....	13	80	50 68
1002	Adams, Henry R., North Seguin	.....	.....	25	.....	108	19	11	.....	.....	2	22	165	102 55
1003	Booth, Jos., Commanda	.....	.....	103	.....	13	.....	.....	.....	.....	.....	17	116	76 95

1004	Gallagher, Daniel, Powassan	.....	83	.....	4	.....	.....	.....	15	91	.....	58 93
1005	Gibbon, D. D., Sundridge	Grade.	.....	45	65	.....	.....	.....	13	113	.....	66 90
1006	Gough, Owen, Powassan	Grade.	136	25	.....	.....	.....	.....	20	161	.....	106 60
1007	Klose, Chas. A., Maple Lake	Shropshire.	.....	36	90	.....	.....	.....	15	126	.....	74 76
1008	Klose, Ernest, Maple Lake	.....	.....	.....	63	152	.....	.....	29	227	.....	116 18
1009	McFadden, Abe, Trout Creek	Grade.	.....	46	77	.....	.....	3	18	126	.....	74 69
1010	McIntyre, Duncan, Powassan	Shropshire.	140	214	9	.....	6	16	48	385	.....	243 23
1011	Marsden, Maurice, Burk's Falls	Oxford.	83	20	68	.....	3	.....	32	174	.....	113 61
1012	Marsden, Sidney E. P., Burk's Falls	Oxford.	86	20	.....	.....	3	.....	7	116	.....	73 44
1013	Purdon, F. K., Powassan	Shr. & Lei.	29	58	11	.....	7	.....	13	108	75	65 93
1014	Ross, Ewen, Turtle Lake	Shropshire.	30	193	9	.....	.....	.....	27	246	23	151 67
1015	Shannon, Brookfield, Callander	.....	26	.....	.....	18	.....	.....	5	44	.....	26 42
1016	Silk, W. A., Seguin Falls	Grade.	95	102	24	.....	8	.....	36	229	.....	146 22
1017	Turnbull, Henry H., Doe Lake	Leicester.	5	.....	100	.....	.....	.....	9	115*	.....	85 35
		.....	865	26	982	467	192	16	19	.....	2 23	1,634 11

PERTH COUNTY.

1018	Ballantyne, W. W., Stratford, R.R. 3	Southdown.	.....	.....	.....	.....	.....	.....	10	60	.....	37 98
1019	Burns, Robt. S., Palmerston	Grade.	55	.....	8	395	.....	.....	44	429	23	239 10
1020	Campbell, Jas. K., Palmerston	.....	5	.....	30	55	.....	9	12	99	.....	58 31
1021	Foulstone, Chas. L., Atwood	Grade.	.....	.....	18	63	.....	.....	11	81	.....	47 74
1022	Foulstone, Wm., Atwood, R.R. 1	Grade.	24	.....	186	19	.....	.....	26	229	23	145 29
1023	Hislop, Jas., Stratford, R.R. 2	Hampshire.	316	.....	234	167	76	8	105	801*	.....	536 10
1024	Kelly, John & Son, Shakespear	Leicester.	338	60	74	591	24	.....	123	1,087	.....	665 45
1025	McVannel, Duncan, St. Mary's	Southdown.	.....	58	.....	.....	.....	.....	13	58	23	39 02
1026	McCallum, Duncan, Stratford	Leicester.	.....	.....	14	190	.....	.....	22	214	.....	120 94
1027	McGillawee, Jas., Stratford, R.R. 1	Grade.	.....	.....	38	125	.....	.....	16	179	.....	100 39
1028	McFavish, John F., Gad's Hill, R.R. 1	Grade.	32	.....	80	9	.....	.....	15	121	.....	77 52
1029	Mohr, Ezra P., Gad's Hill, R.R. 1	Grade.	.....	.....	17	.....	30	.....	1	48	.....	28 37
1030	Mountain, Jos., St. Mary's, R.R. 5	Oxford.	81	.....	115	7	.....	.....	9	212	23	133 47
1031	Parker, Theo., Sebringville, R.R. 1	Grade.	45	.....	166	.....	7	.....	28	218	23	138 86
1032	Smith, Adam A., St. Mary's	Grade.	.....	.....	.....	98	.....	.....	3	101	.....	57 21
1033	Struthers, W. B., Milverton	Shropshire.	110	.....	.....	.....	.....	.....	14	13	124	77 00
1034	Thomson, Adam, Stratford	Leicester.	.....	.....	.....	141	.....	.....	5	19	.....	82 49
		.....	1,006	118	980	1,860	30	100	24	.....	1 15	2,585 24

* Indicates some washed wool included.

PEEL COUNTY.

Cheque No.	Name and Address.	Breed.	Fine Medium Combing.	Medium Combing.	Medium Combing.	Low Medium Combing.	Coarse Combing.	Lustr Combing.	Rejections.	Gray and Black.	Locks and Pieces.	Tags.	Total.	Dr. Expenses.	Credit. Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	pieces	lbs.	\$ c.
1035	Ackroyd, Mathew, Brampton	Grade.	22	29	71	29	121	...	...	...	...	...	172	...	102 82
1036	Armstrong, Harvey W., Inglewood	Oxford.	135	...	...	...	...	...	...	...	31	...	20	...	145 90
1037	Barker, Robt., Inglewood	Grade.	126	...	...	287	64	...	...	...	...	...	237	...	309 60
1038	Bowes, Alfred J., Bolton, R.R. 1	...	...	...	...	61	35	...	...	...	...	22	51	...	59 83
1039	Brocklebank, Henry, Malton	Shropshire.	65	...	...	39	...	...	...	...	...	3	11	...	68 20
1040	Brown, W. C., Meadowvale	Grade.	9	...	...	75	...	...	...	...	...	...	104	...	56 18
1041	Cation, Norman, Snelgrove	...	87	...	...	27	6	...	...	...	...	9	10	...	56 18
1043	Davidson, W. T., Meadowvale	Leicester.	...	...	...	...	112	...	...	...	...	...	16	...	81 86
1044	Dolson, S. & Son, Norval	...	25	58	...	...	139	...	...	...	...	...	11	...	66 58
1045	Downey, Milton, Inglewood	Grade.	42	...	...	69	...	...	...	...	...	...	25	...	144 26
1046	Downey, Orland H., Bolton, R.R. 2	Grade.	17	...	...	46	...	...	...	...	...	...	10	...	71 99
1047	Duke, Jas., Caledon, R.R. 1	Grade.	...	...	...	...	...	...	...	...	...	...	9	...	58 86
1048	Donnell, Jos. O., Macville, R.R. 1	Grade.	...	...	...	...	...	...	...	...	...	...	15	...	66 18
1049	Early, P. G., Norval	...	93	...	...	11	...	...	...	...	...	6	7	...	46 87
1047	Fallis, Jas. R., Brampton	Ox. & Shr.	66	54	...	381	26	...	...	...	...	...	14	...	69 00
1051	Frank, John, Terra Cotta	Cotswold.	...	...	...	21	82	...	...	...	...	...	47	...	367 30
1052	Giffen, Wm. E., Campbell's Cross	Grade.	32	...	...	20	70	...	...	...	...	...	11	...	60 60
1053	Gout, Cecil L., Bolton	Cotswold.	...	...	...	38	81	...	...	...	...	...	14	...	74 38
1054	Groves, Fred., Alton, R.R. 1	Oxford.	77	...	...	64	...	...	...	...	...	3	10	...	71 65
1055	Gray, Mrs. Jos., Brampton	...	105	...	...	...	75	...	...	...	...	...	16	...	91 90
1056	Groat, J. W., Snelgrove	Shr. & Ox.	120	...	...	162	...	...	...	...	...	...	21	...	113 17
1057	Gowland, Fred, Mono Road, R.R. 2	Grade.	313	...	...	65	...	...	...	...	...	...	31	...	189 00
1058	Hall, W. T., Brampton	...	23	...	...	66	10	...	...	...	...	...	53	...	249 86
1059	Hodges, T. E., Burnhamthorpe	Shropshire.	10	...	...	11	...	...	...	...	...	...	12	...	63 17
1060	Hillyard, Jas. R., Caledon	...	30	...	...	50	9	...	...	...	...	...	16	...	82 94
1061	Holmes, W. J., Orangeville	...	90	5	...	...	...	...	...	...	...	...	13	...	56 47
1062	Houston, W. J., Alton, R.R. 1	Oxford.	18	...	...	79	...	...	...	...	...	...	16	...	67 42
1063	Kerr, Geo., Bolton	...	33	...	...	15	11	...	...	...	...	6	10	...	63 68
1064	Kirkwood, Jas., Terra Cotta, R.R. 1	Grade.	173	...	...	28	...	...	...	...	...	...	8	...	40 99
1065	Laidlaw, Jas., Brampton, R.R. 1	Cotswold.	18	...	...	30	83	...	...	...	...	...	26	...	133 18
1066	Line, Wm. Jas., Caledon East	Grade.	49	...	...	77	27	...	...	...	...	...	14	...	78 68
1067	Leslie, Geo. H., Cheltenham, R.R. 1	Cotswold.	...	...	...	...	68	...	...	...	...	...	16	...	99 40
1068	McClure, Wm. G., Brampton, R.R. 2	Grade.	...	...	...	82	10	...	...	...	...	...	8	...	60 36
1069	McCauley, J. E., Brampton, R.R. 6	Shropshire.	160	...	...	...	...	...	...	...	...	...	12	...	62 60
													12	...	106 43

PETERBORO COUNTY.

Cheque No.	Name and Address.	Breed.	Fine Medium Comb.	Medium Comb.	Medium Clothing.	Low Medium Comb.	Coarse Comb.	Lustre Comb.	Rejections.	Gray and Black.	Pieces.	Tags.	Total.	Dr. Expenses.	Credit. Net.
1106	Moore, C. E., Peterboro, R.R. 2	Suffolk	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	\$ c.	\$ c.
1107	McNerney, Geo., Ennismore		.....	60	84	.....	.....	.....	20	8	.....	.....	34	.....	110 66
1108	Primrose, L. C., Havelock	Grade	.....	.....	.....	50	.....	.....	.....	.....	.....	4	6	.....	32 93
1109	Seymour, H. B., Bobcaygeon	Leicester	.....	.....	.....	60	161	.....	.....	6	.....	6	29	.....	135 31
1110	Thomson, Chas., Keene, R.R. 2	Grade	.....	.....	.....	6	142	.....	.....	.....	.....	4	15	80	85 83
1111	Thompson Bros., Indian River	Shropshire	.....	.....	.....	7	101	52	.....	.....	.....	7	31	.....	92 55
			.....	188	180	.....	404	52	20	14	.....	21	130	80	609 41

PRINCE EDWARD COUNTY.

1112	Beaumont, Chas., Picton, R.R. 6	Hampshire	.....	53	.....	.....	.....	.....	.....	.....	.....	2	9	55	10	35 76
1113	Christy, Ed. B., Demorestville	Grade	.....	52	.....	45	.....	.....	.....	.....	.....	1	13	98	.....	63 62
1114	Fraser, D. H., Northport	Shropshire	.....	153	.....	7	.....	.....	.....	.....	.....	.....	23	160	.....	106 45
1115	Leavens, Howard, Bloomfield	.....	.....	199	.....	260	.....	.....	.....	.....	.....	4	57	463	23	299 25
1116	McMullin, Roblin Farming Co., Picton	Hampshire	.....	266	24	12	.....	.....	.....	15	.....	40	96	357*	23	236 13
1117	Metcalf, Cameron, Cherry Valley	.....	.....	144	.....	.....	.....	.....	.....	.....	.....	.....	18	144	23	95 76
1118	Robinson, F., Picton	Grade	.....	131	.....	26	53	.....	.....	.....	.....	20	23	230	28	139 38
1119	Taylor, Henry, Belleville	.....	.....	568	.....	180	.....	.....	.....	11	.....	4	110	763	.....	499 55
1120	Werden, J. F., & Son, Picton, R.R. 8	Grade	.....	166	18	.....	.....	.....	.....	.....	.....	8	23	192	23	124 71
			.....	1,732	42	530	53	.....	.....	26	.....	79	372	2,462	1 30	1,600 61

RAINY RIVER.

1121	Leveridge, A. J., Devlin	.....	.....	.....	.....	34	6	115	.....	.....	.....	2	19	157	23	91 63
1122	McLeod, D. P., La Vallee	Grade	.....	22	.....	58	.....	.....	.....	.....	.....	5	9	85	.....	52 95
1123	Martin, Malcolm, La Vallee	Grade	.....	8	.....	58	20	.....	.....	.....	.....	6	9	92	.....	55 40
			.....	30	.....	150	26	115	.....	.....	.....	13	37	334	23	199 98

RENFREW COUNTY.

1124	Bulmer, J. C., Cobden	Oxford	14	157 .....	.....	6 .....	.....	20	177	23	111 99
1125	Barr, David, Jr., Renfrew	Grade	294	105 .....	.....	.....	.....	49	417	.....	271 41
1126	Cameron, A. F., Pembroke, R.R. 2	Oxford	41	70	8	126 .....	.....	15	245	.....	109 66
1127	Delahey, E., Pembroke, R.R. 2	Grade	248	22 .....	.....	.....	.....	44	270	.....	179 35
1128	Frood, Thos. W., Renfrew	Grade	140 .....	.....	.....	.....	.....	16	140	95	92 37
1129	Russett, Wm., Braeside	Grade	60 .....	.....	76 .....	.....	.....	16	136	.....	78 38
1130	Simpson, Chas. L., Douglas	Cotswold	14	61	76 .....	.....	.....	24	232	23	138 37
	.....	.....	811	415	76	6	132	184	1,617	1 41	981 53

RUSSELL COUNTY.

1131	McRae, Collin, Cumberland	Shropshire	170	12			7	20	209		129 10
------	---------------------------------	------------------	-----------	----------	-------	-------	---	----	-----	-------	--------

SIMCOE COUNTY.

1132	Allan, Howard, Churchill	Grade	70	32	92	51	7 .....	.....	11	.....	162 75
1133	Allen, Lawrence, Collingwood, R.R. 2	Grade .....	.....	.....	130	130	12 .....	.....	.....	.....	80 90
1134	Balkwell, W. J., Mount Stephen	Grade	25	197	117 .....	.....	.....	40	349	.....	212 25
1135	Botham, M. W., Bradford	Shropshire	97	36 .....	.....	.....	.....	16	133	.....	87 61
1136	Brethet, Jas., Batteau, R.R. 1	Grade	24	43	55	7 .....	.....	14	129	.....	78 33
1137	Beath, M., Shanty Bay	Grade .....	.....	75	68 .....	.....	.....	14	159	.....	91 16
1138	Carruthers, D. C., Avening	Leicester	9	17	198 .....	.....	.....	21	224	.....	130 83
1139	Cairns, Isaac, Stayner	Grade	25 .....	.....	.....	.....	.....	4	23	.....	16 67
1140	Campbell, Angus, Smithdale, R.R. 1	Grade	15	100	53 .....	.....	.....	23	168	.....	104 26
1141	Cook, Chas. W., Coldwater, R.R. 3	Leicester .....	.....	20	60 .....	.....	.....	10	80	.....	47 29
1142	Connell, Timothy, Thornton	Cotswold .....	.....	.....	247	191 .....	.....	19	247	23	141 97
1143	Culham, Ansley, Stayner	Grade .....	.....	8	105 .....	.....	.....	11	128	.....	69 48
1144	Culham, J. E., Stayner	Grade .....	.....	37	56 .....	.....	.....	9	93	23	55 60
1145	City Dairy Farms, Ltd., New Lowell	Grade	204	115	28	56 .....	.....	42	416	.....	261 07
1146	Davis, Geo., Utopia	Grade .....	.....	.....	80 .....	.....	.....	12	119	23	69 47
1147	Davis, W. H., Batteau	Grade .....	.....	115	19 .....	.....	.....	16	134	.....	84 25
1148	Doble, J. H., Udney	Grade	8	49 .....	.....	.....	.....	4	61	.....	37 62
1149	Drury, E. C., Barrie	Shropshire	437	25 .....	.....	.....	.....	58	462	.....	307 24
1150	Ego, R. J., Coldwater, R.R. 4	Grade	24	41	46 .....	.....	.....	13	111	.....	68 64
1151	Faris, P. M., Bradford	Shropshire	67 .....	.....	.....	6 .....	.....	11	73	.....	47 45

* Indicates some washed wool included.

SIMCOE COUNTY.—Continued.

Cheque No.	Name and Address.	Breed.	Reflections.										Tags.	Total.		Dr. Expenses.	Credit. Net.
			Fine Medium Comb.	Medium Comb.	Medium Clothing.	Low Medium Comb.	Coarse Comb.	Lustre Comb.	Gray and Black.	Pieces and Looks.	lbs.	fleeces		lbs.	\$ c.		
1152	Fennell, E. L., Bradford	Leicester	...	...	...	...	22	129	...	...	...	...	...	15	151	...	\$ 88 29
1153	Fraser, W. S., Bradford	Shropshire	116	...	...	...	58	30	...	...	...	...	...	15	116	...	77 33
1154	Friend, J., Everett	Grade	...	...	...	...	...	...	...	...	...	...	...	17	93*	...	70 64
1155	Jackson, J. E., Ballycrov, R.R. 1	Hampshire	152	...	...	...	18	35	...	...	...	...	...	6	59	...	107 66
1156	Kitchen, Geo. A., Stayner	Grade	...	...	...	...	123	57	...	43	...	...	...	31	258	...	33 20
1157	Lawrence, Wm., Orillia, R.R. 3	Leicester	35	...	...	...	6	23	...	80	5	...	...	18	131	...	155 19
1158	Leigh, Geo., Atherley, R.R. 1	Leicester	...	...	...	...	60	10	...	...	...	...	...	20	190	...	64 03
1159	Loughheed, H. M., Allendale, R.R. 2	Grade	120	...	...	...	...	...	...	...	...	...	...	55	467	...	124 01
1160	McDermott, A. J., Beeton	Shropshire	282	...	...	...	7	...	...	...	...	...	...	16	117	...	313 17
1161	McLean, Dan, Jarratt	Hampshire	110	...	...	...	94	42	...	...	...	...	...	16	136	...	77 79
1162	McMahon, T. H., Hawkestone	Leicester	...	...	...	...	18	80	...	...	...	...	...	11	105	...	84 11
1163	McMurray, Robt., Stayner, R.R. 3	Grade	7	...	...	...	80	72	...	...	...	...	...	19	152	...	62 20
1164	Martin, W. H., Thornton, R.R. 1	Leicester	...	...	...	...	91	103	...	15	...	...	...	23	...	...	92 23
1165	Mumberson, Frank, New Lowell	Grade	39	...	...	...	59	...	...	...	...	...	...	36	270*	...	180 01
1166	Nelly, W. A., Gilford	Grade	46	...	...	...	123	172	33	...	...	...	...	11	105	...	68 28
1167	Page, F. N., Angus	Oxford	...	...	...	...	103	...	...	...	...	...	...	30	328	...	196 20
1168	Parnell, R. M., Elmvale	Leicester	7	...	...	...	...	...	...	...	...	...	...	11	110	...	70 34
1169	Partridge, A. W., Barrie	Leicester	...	...	...	...	110	...	...	19	...	...	...	13	129	...	72 69
1170	Parnell, Thos., Wyevale	Shropshire	107	...	...	...	55	...	...	...	...	...	...	19	162	...	106 39
1171	Raikes, Geo., Barrie	Shropshire	...	...	...	...	111	24	...	9	...	...	...	17	148	...	90 18
1172	Richardson, Alex. & Son, Fergusonvale	Grade	...	...	...	...	16	54	52	...	...	...	...	12	122	...	70 61
1173	Reid, Thos., Coldwater	Grade	...	...	...	...	67	27	29	...	...	...	...	14	123	...	74 95
1174	Rothwell, Wm., Gilford	Oxford	72	...	...	...	120	...	...	...	...	...	...	22	192	...	124 50
1175	Rayner, John, Stayner, R.R. 3	Grade	...	...	...	...	...	145	...	...	...	...	...	14	160	...	87 42
1176	Sharp, Scott, Thornton	Grade	...	...	...	...	95	243	...	...	...	...	...	39	353	...	204 13
1177	Smith, R. J., Batteau, R.R. 1	Grade	...	...	...	...	36	43	...	...	...	...	...	8	79	...	47 47
1178	Smith, S. G., Batteau, R.R. 1	Oxford	...	...	...	...	108	...	...	...	...	...	...	13	108	...	68 85
1179	Smith, Walter, Utopia, R.R. 1	Grade	6	...	...	...	20	...	...	...	...	...	...	4	26	...	16 76
1180	Speers, Alex., Phelpston, R.R. 1	Oxford	101	...	...	...	...	...	...	...	...	...	...	10	101	...	66 75
1181	Spearing, Geo., Batteau	Leicester	...	...	...	...	74	32	...	...	...	...	...	16	178	...	102 47
1182	Stewart, Chas., Bradford	Grade	7	...	...	...	...	87	160	...	...	...	...	12	113	...	70 27
1183	Smith, David, Smithdale	Grade	38	...	...	...	...	170	...	12	...	...	...	28	285	...	167 53
1184	Smith, Thos. E., Phelpston	Cotswold	...	...	...	...	...	...	...	...	...	...	...	15	182	...	103 14
1185	Swindle, Thos., Orillia	Grade	...	...	...	...	...	120	...	...	...	...	...	11	120	...	68 85

[illegible]

STORMONT COUNTY.

1191	Cameron, John M., Finch	.....	15	27	9	.....	.....	3	7	54	23	32 95
1192	Gordon, Sandy, Finch	.....	61	55	15	.....	.....	.....	18	139	.....	86 42
1193	Mcltae, Donald, Finch, R.R. 2	.....	43	81	55	.....	.....	.....	27	185	.....	114 53
1194	Munro, S. J., Cornwall, R.R. 2	Grade.	.....	24	.....	6	.....	.....	18	144	2 35	92 94
1195	Roys, Jas., Milles Roche	Shropshire.	176	24	.....	.....	.....	.....	25	200	.....	132 39
			415	211	79	.....	.....	11	95	722	3 04	459 23

SUDBURY COUNTY.

1196	Caldwell, Harry J., Massey	Lei. & Shr.	6	73	6	35	.....	.....	.....	8	17	128	1 10	80 09
1197	Clonghey, M., Webbwood	Grade.	.....	134	.....	36	.....	.....	.....	16	20	186	1 41	115 07
1198	Jackson, Albert J., Markstay	Shropshire.	50	50	.....	20	8	.....	.....	3	12	81	.....	51 48
1199	Leach, Jas. B., Verner	Shropshire.	50	54	.....	17	.....	.....	.....	8	9	79	75	48 18
1200	McLean, D. J., Massey	Shropshire.	.....	145	.....	17	.....	.....	.....	18	21	180	.....	112 22
1201	McDonald, Jas. J., Markstay	Grade.	.....	80	.....	55	15	.....	.....	2	26	152	1 01	96 55
1202	McPhee, Dan., Markstay	Grade.	.....	90	.....	6	.....	.....	.....	.....	18	111	.....	71 40
1203	McDonald, Wm., Markstay	Grade.	.....	170	.....	65	.....	.....	.....	.....	39	235	1 48	153 28
1204	Mapes, F., White Fish	Shropshire.	.....	25	.....	112	86	.....	.....	14	28	237	.....	142 39
1205	McPhee, Malcolm, Markstay	Grade.	.....	70	.....	8	.....	.....	.....	1	14	79	.....	52 03
1206	Shea, Dennis, Warren	Grade.	.....	49	.....	.....	.....	.....	.....	.....	10	49	.....	32 66
1207	Witty, Jas., Massey	Grade.	.....	155	.....	30	9	.....	.....	15	28	209	.....	131 57
			6	1,095	6	401	118	.....	15	.....	242	1,726	5 75	1,086 92

* Indicates some washed wool included.

TIMISKAMING.

Cheque No.	Name and Address.	Breed.	Fine Combing.	Medium Combing.	Medium Clothing.	Low Medium Combing.	Coarse Combing.	Lustre Combing.	Reflections.	Gray and Black.	Locks and Pieces.	Tags.	Total.	Dr. Expenses.	Credit. Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	\$ c.	\$ c.
1208	Agar, Wm., Thornloe	Grade.	17	...	...	...	37	...	...	...	...	...	54	23	32 40
1209	Aitchison, Thos., Milberta	Oxford.	70	...	...	...	...	...	...	...	...	...	70	23	46 43
1210	Ball, Fred, New Liskeard	Grade.	22	...	...	...	...	...	...	...	...	...	22	...	14 67
1211	Coulter, Jos. E., Milberta	Grade.	41	...	...	...	...	...	...	...	...	...	52	23	32 17
1212	Coutts, Frank, Couttsville	Oxford.	44	...	...	115	26	...	9	...	...	2	185	23	117 38
1213	Cruikshank, H. W., New Liskeard	Grade.	76	10	51	131	...	...	...	...	...	...	277	23	167 49
1214	Dowson, Thos., Uno Park	Grade.	6	...	...	30	...	...	...	8	...	...	6	23	26 62
1215	Fowler, Geo., Uno Park	Grade.	36	5	20	...	...	...	...	...	...	...	10	23	40 96
1216	Kennedy, A. J., New Liskeard	Grade.	17	...	...	76	50	...	...	...	...	...	16	97	87 61
1217	McNabb, Thos. G., Milberta	...	67	...	...	31	11	...	...	...	...	...	15	23	70 53
1218	Moleitor, Ambrose, Earleton	Grade.	...	...	22	...	...	...	...	...	...	...	109	...	16 26
1219	Ohlman, Clem., Couttsville	Grade.	69	...	...	44	7	...	...	...	4	...	26	...	86 26
1220	Philp, J. R., New Liskeard, R.R. 1	Grade.	...	...	...	...	...	...	187	...	...	32	18	23	96 63
1221	Tucker, Wilfred G., New Liskeard	Lei. & Shr.	105	7	...	86	...	...	...	...	...	15	19	1 74	134 06
1222	Willard, Chas., Milberta	Grade.	42	...	...	10	...	...	...	...	...	18	34	23	34 37
1223	Willard, E., Milberta	Grade.	37	...	...	105	...	...	...	...	...	...	7	...	91 90
			649	44	...	568	262	...	196	8	4	82	233	5 24	1,095 74

THUNDER BAY COUNTY.

Cheque No.	Name and Address.	Breed.	Fine Combing.	Medium Combing.	Medium Clothing.	Low Medium Combing.	Coarse Combing.	Lustre Combing.	Reflections.	Gray and Black.	Locks and Pieces.	Tags.	Total.	Dr. Expenses.	Credit. Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	\$ c.	\$ c.
1224	Couch, Wm., South Gillies	Grade.	...	...	...	16	15	20	38	...	...	...	9	23	49 31
1225	Hymers, J. C., Hymers	Grade.	...	9	...	...	45	...	8	...	...	...	6	...	36 46
1226	Winter, Wm., Kakabeka Falls	Grade.	...	44	...	26	82	...	...	...	8	...	21	1 33	94 53
			53	...	...	42	142	20	46	...	8	2	36	1 56	180 30

VICTORIA COUNTY.

[illegible]

* Indicates some washed wool included.

WATERLOO COUNTY.

Cheque No.	Name and Address.	Breed.	Fine Medium Combing.	Medium Combing.	Medium Clothing.	Low Medium Combing.	Coarse Combing.	Lustre Combing.	Rejections.	Gray and Black.	Locks and Pieces.	Tags.	Total.	Dr. Expenses.	Credit. Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	feeces	lbs.	\$ c.
1263	Allingham, Newton, Wallenstein	Ox. & Lei...	...	64	...	54	...	...	...	...	...	14	16	...	\$ 80 77
1264	Arthur, D. & W., Branchton	Shropshire.	...	151	...	5	...	...	...	...	...	...	17	...	104 04
1265	Beattie, Alex., W., Blair, R.R. 1	Grade...	...	291	...	118	...	...	9	4	1	...	58	63	275 33
1266	Brown, Chas., New Hamburg	Shropshire.	...	128	...	7	...	...	...	...	...	...	19	...	89 78
983 & 984	Clemens, A. S., Hespeler, R.R. 1	...	...	23	...	68	203	...	...	...	...	13	29	...	178 97
1268	Cowan, Robt. E., Galt, R.R. 3	...	...	27	22	89	123	24	...	...	...	...	42	...	240 92
1269	Cranston, Robt., Jr., Galt	Grade...	...	...	...	18	170	...	...	...	...	...	19	...	109 11
1270	Crawford, Alex. C., Britton, R.R. 1	Grade...	...	66	...	20	17	...	...	...	...	...	17	163*	81 14
1271	Deans, Jas., Galt, R.R. 4	Grade...	9	31	...	...	...	...	...	...	...	...	5	...	24 72
1272	Dickson, Thos., Galt, R.R. 6	...	...	...	...	102	19	...	...	...	...	...	13	...	75 97
1273	Dryden, Norman, Galt, R.R. 7	Grade...	...	100	...	37	...	...	...	...	...	...	18	...	90 24
1274	Fsch, Amos, West Montrose, R.R. 2	Grade...	...	5	...	19	64	19	...	...	...	...	11	...	63 23
1275	Fsch, Orville W., Elmira	Grade...	...	27	...	23	...	...	...	...	...	2	3	...	15 19
1276	Ferguson, D. S., Galt	Grade...	...	20	...	60	32	...	...	...	...	...	15	...	74 68
1277	Forbes, Alex. S., West Montrose, R.R. 2	Lei. & Shr.	...	20	...	10	93	...	...	...	...	...	12	...	73 25
1278	Grant, John, Blair, R.R. 1	Grade...	...	32	...	11	296	...	...	...	...	...	25	...	177 42
1279	Gilbert, John, Galt, R.R. 1	Grade...	...	46	...	...	...	...	...	...	...	...	5	...	21 33
1280	Henderson, J. A., Blair, R.R. 1	Oxford...	...	...	...	117	...	...	...	...	...	...	19	...	104 68
1281	Howlett, Wesley, West Montrose	Leicester...	...	...	...	43	17	...	...	...	...	2	8	...	37 72
1282	Jamieson, Geo., Galt, R.R. 1	...	...	...	81	5	...	...	...	...	...	5	10	...	59 32
1283	Johnstone, Wm., Galt, R.R. 7	Leicester...	...	100	...	93	94	...	54	...	...	...	40	...	207 34
1284	Koch, M., Bloomingdale	Grade...	...	94	...	34	21	...	...	...	2	...	...	...	116 01
1285	Lansley, Chas. W., Galt, R.R. 1	Shropshire	...	180	...	29	...	...	...	...	...	...	3	...	18 49
1286	McPhail, A. B., Galt, R.R. 4	Lei. & Ox...	...	15	...	36	20	...	...	...	...	...	21	...	119 99
1287	Martin, E. G., Elmira	Grade...	...	40	...	8	...	...	...	...	...	...	9	...	44 07
1288	Miller, C. D., West Montrose	Grade...	...	...	...	...	...	...	...	...	...	...	6	...	31 76
1289	Nohrgang, Urias, New Hamburg	Grade...	...	62	...	27	...	...	...	...	...	...	3	...	15 54
1290	Ogram, Jas., Wallenstein	Grade...	7	76	...	84	9	...	...	...	...	...	15	...	100 07
1291	Pannoecker, Arthur T., Hespeler	Grade...	145	...	...	11	...	...	...	...	...	...	13	...	66 84
1292	Rutherford, W. C., Avr. R.R. 3	Shropshire	...	112	7	...	...	...	...	...	...	4	17	...	96 43
1293	Shantz, Edwin S., Hespeler, R.R. 2	Grade...	...	76	...	11	...	...	...	...	...	...	16	...	88 51
1294	Shantz, Jesse, Waterloo, R.R. 3	Shropshire	...	...	...	...	...	...	...	...	...	8	9	...	50 66
1295	Shantz, Moses H., New Hamburg	Grade...	...	...	...	...	95	...	33	...	...	...	13	...	71 36
1296	Shantz, Noah S., New Hamburg	Grade...	...	...	...	...	208	...	8	...	...	...	23	...	123 79
1297	Sheldon, Harold E., Galt	Grade...	...	...	...	...	...	...	275	...	...	...	42	58	138 30

WELLINGTON COUNTY.

Cheque No.	Name and Address.	Breed.	Fine Medium Coarse				Medium Clothing Low				Coarse Lustre Combing				Rejections				Tags.				Total.		Dr. Expenses.	Credit. Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	fleeces	lbs.	\$ c.	\$ c.
1325	Alton, H. E., Rockwood, R.R. 1	Lincoln	.....	.....	.....	.....	.....	.....	.....	.....	111	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	10	126	.....	.....	72 54
1326	Anderson, David A., Guelph, R.R. 7	Grade	.....	.....	.....	.....	.....	.....	.....	.....	66	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16	153	.....	.....	89 58
1327	Argo, Wm., Guelph, R.R. 2	Oxford	.....	.....	.....	.....	.....	.....	.....	.....	190	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	21	224	.....	.....	136 96
1328	Arkell, Henry & Son, Guelph, R.R. 2	Oxford	.....	.....	.....	.....	.....	.....	.....	.....	80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	164	1,348	.....	.....	895 85
1329	Armstrong, Adam A., Fergus	Oxford	.....	.....	.....	.....	.....	.....	.....	.....	1267	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	32	287	.....	.....	182 40
1330	Arnott, R., Conn	.....	.....	.....	.....	.....	.....	.....	.....	.....	96	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9	32	.....	.....	212 01
1331	Bailev, Chas. E., Guelph, R.R. 1	Lincoln	.....	.....	.....	.....	.....	.....	.....	.....	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	45	351	.....	.....	72 56
1332	Black, Neil, Guelph, R.R. 6	Grade	.....	.....	.....	.....	.....	.....	.....	.....	64	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12	100*	.....	.....	84 89
1333	Bolton, Arch, Guelph, R.R. 7	Grade	.....	.....	.....	.....	.....	.....	.....	.....	87	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12	143	.....	.....	43 43
1334	Bolton, Frank I., Guelph, R.R. 7	.....	.....	.....	.....	.....	.....	.....	.....	.....	32	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8	72	.....	.....	69 08
1335	Bolton, Wm., Guelph, R.R. 6	Oxford	.....	.....	.....	.....	.....	.....	.....	.....	120	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6	49	.....	.....	32 45
1336	Bowman, Jas., Guelph	Suffolk	.....	.....	.....	.....	.....	.....	.....	.....	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	47	316	.....	.....	208 91
1337	Barbour, D., Hillsburg	Oxford	.....	.....	.....	.....	.....	.....	.....	.....	257	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12	111	.....	.....	73 55
1338	Barbour, E., Hillsburg	Oxford	.....	.....	.....	.....	.....	.....	.....	.....	516	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	111	970	.....	.....	618 41
1339	Breese, John, Guelph	Grade	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	25	.....	.....	14 39
1340	Bridge, Geo., Palmerston	Grade	.....	.....	.....	.....	.....	.....	.....	.....	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15	85*	.....	.....	66 96
1341	Broham, A. G., Ariss, R.R. 2	.....	.....	.....	.....	.....	.....	.....	.....	.....	44	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7	57	.....	.....	36 41
1342	Benham, Chas., Rockwood, R.R. 5	Cotswold	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	27	330	.....	.....	187 48
1343	Benham, Jas. L., Rockwood	Grade	.....	.....	.....	.....	.....	.....	.....	.....	32	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20	208	.....	.....	125 82
1344	Benham, Henry R., Rockwood	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11	114	.....	.....	63 75
1345	Burt, Geo. C., Hillsburg	Lin. & Lei.	.....	.....	.....	.....	.....	.....	.....	.....	40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13	159	.....	.....	93 70
1346	Brooks, R. A., Rockwood, R.R. 3	.....	.....	.....	.....	.....	.....	.....	.....	.....	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	23	244	.....	.....	139 28
1347	Campbell, Colin, Guelph, R.R. 1	.....	.....	.....	.....	.....	.....	.....	.....	.....	144	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18	158	.....	.....	99 67
1348	Church, W. J., Arthur	Grade	.....	.....	.....	.....	.....	.....	.....	.....	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11	110	.....	.....	64 93
1349	Cockburn, J. A., Puslinch, R.R. 1	Oxford	.....	.....	.....	.....	.....	.....	.....	.....	243	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	37	335	.....	.....	220 84
1350	Clark, Jas., & Sons, Puslinch, R.R. 1	Leicester	.....	.....	.....	.....	.....	.....	.....	.....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	33	288	.....	.....	165 91
1351	Cocker, John, Guelph, R.R. 1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16	189	.....	.....	109 24
1352	Crane, John C., Guelph, R.R. 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	144	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	19	144	.....	.....	95 99
1353	Currie, A. E., Guelph, R.R. 1	Grade	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	21	185	.....	.....	106 50
1354	Dickieson, John, Rockwood	Lincoln	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	27	297	.....	.....	170 98
1355	Dickieson, L., Ariss, R.R. 1	Oxford	.....	.....	.....	.....	.....	.....	.....	.....	208	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16	208	.....	.....	119 75
1356	Dickieson, W. A., Rockwood, R.R. 1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11	120	.....	.....	75 14
1357	Dobbie, W. H., Guelph, R.R. 7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13	115	.....	.....	72 19
1358	Eby, Amos, Floradale	Grade	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	22	.....	.....	14 46
1359	Farrill, Geo. A., Kenilworth	Leicester	.....	.....	.....	.....	.....	.....	.....	.....	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12	135	.....	.....	76 78

WELLINGTON COUNTY.—Continued.

Cheque No.	Name and Address.	Breed.	Fine Medium Combing.	Medium Combing.	Medium Clothing.	Low Medium Combing.	Coarse Combing.	Lustré Combing.	Rejections.	Gray and Black.	Pieces.	Tags.	Total.	D. Expenses.	Credit. Net.
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	\$ c.	\$ c.
1405	Parkinson, Lazarus, Rockwood, R.R. 3	Oxford	.....	235	.....	155	16	.....	.....	.....	.....	12	44	.....	267 83
1406	Patterson, Robt., Rockwood, R.R. 4	Grade.	.....	25	4	42	70	.....	.....	.....	.....	.....	16	.....	86 45
1407	Quirk, Jos., Aberfoyle	.....	.....	50	.....	52	7	.....	.....	.....	.....	.....	11	.....	70 52
1408	Rettie, Jas., & Sons, Fergus	Leicester	.....	.....	.....	42	235	.....	.....	.....	.....	8	28	.....	164 17
1409	Robertson, Geo. D., Guelph, R.R. 1	Oxford	.....	67	.....	35	.....	.....	.....	.....	.....	.....	12	.....	66 97
1410	Ramesbottom, Wm., Conn	Oxford	.....	134	.....	85	8	.....	.....	.....	.....	32	32	.....	164 89
1411	Ransom, Wilson, Fergus, R.R. 4	Grade.	.....	75	.....	7	265	.....	.....	.....	.....	.....	13	23	153 35
1412	Root, David O., Orton, R.R. 1	Oxford	.....	29	.....	93	.....	.....	.....	.....	.....	3	26	.....	54 23
1413	Ross, Jas., Fergus, R.R. 1	.....	.....	10	.....	130	.....	.....	7	.....	.....	2	16	.....	82 69
1414	Reading, H. & O., Ariss, R.R. 1	Oxford	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14	.....	89 55
1415	Roszell, Fred., Hespeler, R.R. 2	Leicester	.....	.....	.....	9	224	.....	.....	.....	.....	.....	25	.....	134 69
1416	Scott, Arch., Puslinch, R.R. 2	Leicester	.....	.....	.....	.....	90	.....	.....	.....	.....	.....	10	.....	51 81
1417	Scott, Crastor, Guelph, R.R. 2	Oxford	.....	152	.....	70	.....	.....	.....	.....	.....	3	30	.....	146 74
1418	Simpson, David, Belwood, R.R. 5	Shropshire.	.....	85	.....	.....	.....	.....	.....	.....	.....	.....	11	.....	56 66
1419	Slater, S., Guelph, R.R. 6	.....	.....	43	.....	44	.....	.....	.....	.....	.....	.....	9	.....	56 72
1420	Smith, Frank, Guelph, R.R. 5	Oxford	.....	35	.....	41	9	.....	.....	.....	.....	.....	10	85	54 65
1421	Smith, Arch. W., Elora, R.R. 2	.....	.....	21	.....	25	125	.....	.....	39	.....	.....	22	210*	123 62
1422	Socket, Mrs. John, Rockwood, R.R. 5	.....	.....	.....	.....	.....	126	.....	.....	.....	.....	9	10	135	74 90
1423	Steffler, Wm., Guelph	Grade.	.....	.....	.....	115	63	.....	.....	.....	.....	12	19	190	112 74
1424	Stortz, Geo. A., Arthur, R.R. 2	Grade.	.....	.....	.....	81	39	.....	.....	.....	.....	1	13	121	74 13
1425	Swanton, Wm., Rockwood, R.R. 3	Grade.	.....	.....	.....	.....	131	.....	9	.....	.....	.....	16	140	79 96
1426	Tarzwel, Arthur, Hillsburg, R.R. 2	Grade.	.....	.....	.....	74	.....	.....	.....	.....	.....	2	8	76	47 70
1427	Tolton, B., Guelph, R.R. 4	Lincoln.	.....	.....	.....	.....	268	.....	.....	.....	.....	4	21	272	47 70
1428	Vanzant, H., & Sons, Elora	Dorset.	.....	23	.....	9	.....	.....	.....	.....	.....	.....	4	.....	155 34
1429	Walker, Geo. W., Rockwood, R.R. 3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	32	.....	20 84
1430	Webb, Irwin, Guelph	Grade.	.....	112	.....	101	10	125	.....	.....	.....	.....	10	125	71 96
1431	Wolfe, J. E., Guelph, R.R. 7	Lei. & Ox.	.....	.....	.....	36	63	.....	.....	38	.....	24	45	285	168 77
1432	Watson, J. R., Guelph, R.R. 4	Grade.	.....	54	.....	60	.....	.....	.....	16	.....	7	16	137	59 23
1433	Wharton, Mrs. H., Eden Mills	Oxford.	.....	293	.....	60	.....	.....	.....	.....	.....	.....	46	371	83 53
1434	Whitelaw, A. & W., Guelph	Leicester.	.....	.....	.....	10	305	96	.....	.....	.....	.....	53	415	239 75
1435	Young, Samuel, Guelph	Oxford.	.....	54	.....	164	6	.....	.....	.....	.....	4	27	228	238 28
			64 6, 775	232	5, 102	8, 302	958	238	162	95	392	2, 397	22, 320	92	13, 660 79

WENTWORTH COUNTY.

1436	Alderson, J. M., Carlisle	Grade	50	7	7	17	216	7	57	37 79
1437	Allan, Jas. N., Hamilton	Grade	26	185	20	185	20	24	233	134 96
1438	Baker, Edgar, Alberton	Grade	35	7	120	7	120	5	40	146 56
1439	Bennett, Herb. J., Campbellville, R.R. 3	Oxford	76	9	15	9	15	14	137	24 64
1440	Barlow, Judson, Glanford, R.R. 1	Leicester	130	15	99	86	99	19	145	78 60
1441	Brown, Fred., Galt, R.R. 6	Grade	40	27	20	27	20	31	225	56 92
1442	Clark, Geo. E., Smithville	Oxford	37	24	16	24	16	19	145	95 99
1443	Dymont, Wm. D., Copetown	Grade	60	91	42	91	42	19	66	139 29
1444	Gastle, R. H., Carlisle	Grade	90	200	124	200	124	8	61	41 39
1445	Gunby, Arthur P., Campbellville, R.R. 3	Oxford	396	24	12	24	12	9	79	39 97
1446	Gunby, Spencer H., Campbellville, R.R. 3	Grade	55	28	95	28	95	20	133	50 98
1447	Harris, Geo. N., Lynden	Southdown	65	58	71	58	71	10	95	89 08
1448	Henderson, J. S., Rockton	Shropshire	10	68	10	68	10	19	108	61 30
1449	Irwin, J. M., Galt	Shropshire	288	31	94	31	94	97	720	462 60
1450	Johnston, E. F., Copetown, R.R. 1	Grade	173	31	55	31	55	15	128*	34 41
1451	Krick, David, Stoney Creek	Grade	31	16	74	16	74	15	128	80 53
1452	Lee, Erlaud, Stoney Creek	Grade	45	16	4	45	16	22	212	71 92
1453	McKnight, E., Rockton	Leicester	65	8	58	65	8	19	131	120 96
1454	McQueen, W. R., Galt, R.R. 1	Shropshire	48	71	71	48	71	13	119	85 73
1455	Marshall, Ed. H., Glanford Sta., R.R. 1	Grade	10	68	10	68	10	19	108	76 69
1456	Mitchell, John, Stoney Creek	Southdown	288	28	28	28	28	19	108	72 98
1457	Newell, H., Millgrove, R.R. 1	Shropshire	173	31	55	31	55	15	128	213 51
1458	Paterson, Ritchie, Copetown	Leicester	31	16	74	31	16	10	190	76 15
1459	Robb, R. M., Troy	Grade	45	16	4	45	16	10	190	134 56
1460	Riddle, John, Galt	Shropshire	34	40	40	34	40	10	74	155 73
1461	Robbins, J. W., Hamilton	Shropshire	11	48	48	11	48	8	73	57 84
1462	Sager, Ernest, Branchton, R.R. 2	Shropshire	269	4	91	269	4	10	66	143 64
1463	Smith, Jos. F., Ancaster, R.R. 1	Grade	175	9	33	175	9	10	66	139 63
1464	Stewart, W. E., Campbellville, R.R. 2	Grade	182	296	44	182	296	10	74	48 17
1465	Tansley, Jos. E., Carlisle	Grade	40	6	79	40	6	13	119	68 72
1466	Teepie, Lewis E., Copetown	Shropshire	48	80	110	48	80	42	269	179 32
1467	Thompson, John S., West Flamboro	Grade	175	9	33	175	9	38	310	199 48
1468	Thompson, Wm., Princeton, R.R. 2	Grade	182	296	44	182	296	15	42	26 64
1469	Thompson, Wm., Copetown, R.R. 1	Grade	40	6	79	40	6	10	74	338 52
1470	Topp, Addison, Glanford, R.R. 1	Leicester	48	80	110	48	80	16	46	130 72
1471	Treddle, Wm., Vinemount, R.R. 1	Leicester	33	42	42	33	42	20	163	101 92
1472	VanSickle, Orton, Alberton	Grade	65	17	100	65	17	20	190	114 10
1473	Walker, Wm., Dundas, R.R. 4	Grade	33	42	42	33	42	12	75	148 77
1474	Watson, H., Galt, R.R. 3	Grade	65	17	100	65	17	24	227	131 03
1475	Watson, Thos., Galt, R.R. 1	Shropshire	65	17	100	65	17	10	66	44 00

* Indicates some washed wool included.

1502	Mitchell, John, Nashville	.....	.....	15	.....	13	19	.....	.....	.....	.....	4	6	51	.....	30 28
1503	Moffatt, M. C., Bolton	.....	.....	.....	.....	47	10	.....	80	.....	.....	.....	17	137	.....	76 12
1504	Moore, Jno. D., Newmarket	.....	Grade.	.....	.....	59	90	.....	.....	.....	.....	.....	15	149	23	89 20
1505	McCarson, Geo., Queensville	.....	Grade.	.....	.....	76	34	.....	.....	.....	.....	6	10	116	23	69 38
1507	Padgett, Geo. B., Gormley	.....	.....	12	.....	66	.....	.....	.....	.....	.....	2	7	80	.....	50 60
1508	Price, W. M., Aurora	.....	Southdown.	9	67 90	11	.....	.....	.....	.....	.....	.....	30	177	.....	118 66
1509	Rumble, Frank S., Richmond Hill	.....	Grade.	.....	.....	.....	.....	88	15	.....	.....	.....	7	103	.....	58 24
1510	Ross, Herb. E., Strange	.....	Grade.	.....	.....	70	.....	.....	110	.....	.....	.....	16	180	.....	100 18
1511	Sharp, R. L. R., Newmarket	.....	Grade.	.....	.....	.....	135	.....	.....	.....	.....	.....	13	135	23	77 49
1512	Seannett, Silas, Queensville	.....	Oxford	.....	96	27	33	.....	31	.....	.....	.....	20	187	23	115 63
1513	Silver, O. J., Sutton West	.....	Oxford	.....	50 15	174	8	.....	.....	.....	.....	.....	27	247	.....	159 02
1514	Smith, O. J., Sutton West	.....	Shropshire.	.....	160	33	.....	.....	.....	.....	.....	.....	25	193	.....	127 69
1515	Smith, Fred. A., Queensville	.....	Grade.	.....	36	31	18	.....	.....	.....	.....	.....	10	85	23	53 90
1516	Smith, Jacob, Queensville	.....	Leicester	.....	24	85	50	.....	.....	.....	.....	.....	25	159*	.....	125 26
1517	Sturdy, Oliver H., King	.....	Cotswold	.....	.....	.....	56	.....	.....	.....	.....	.....	4	56	.....	32 24
1000	Sturdy, Oliver H., King	.....	.....	.....	48 18	50	37	.....	12	.....	.....	.....	18	165	.....	103 37
& 1518	White, T. L., Unionville, R.R. 1	.....	.....	.....	56 3	.....	.....	.....	.....	.....	.....	1	13	92	35	61 01
1519	Wilson, Thos. R., Bolton, R.R. 3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Wray, Cecil L., Newmarket	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
				41 1,462	139	2,050	2,207	216	328	17	56	50	706	6,566	3 34	4,027 19

* Indicates some washed wool included.



REPORT
OF THE
WOMEN'S INSTITUTES

OF THE
Province of Ontario

1917

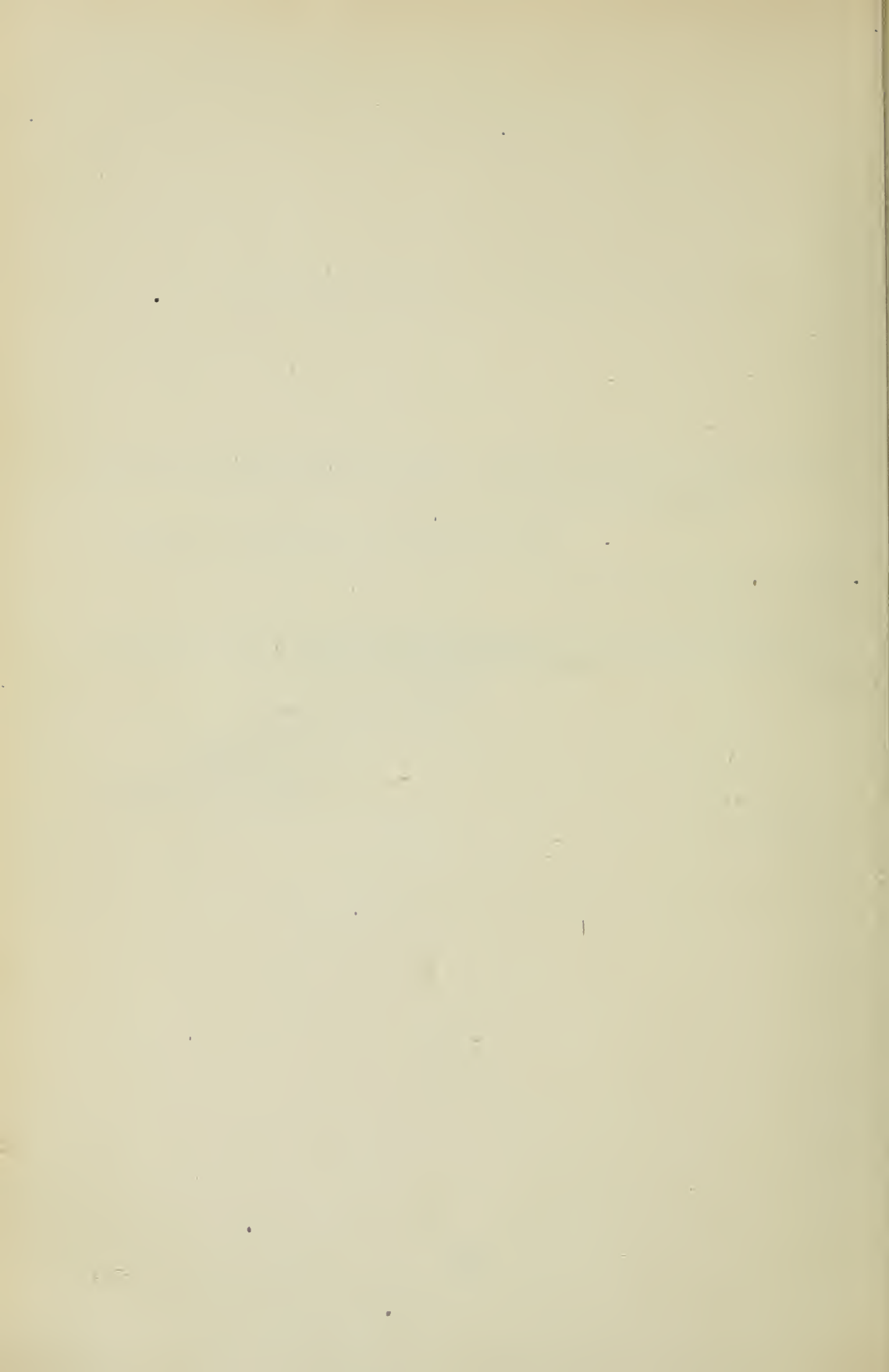
PART I.

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO:
Printed by A. T. WILGRESS, Printer to the King's Most Excellent Majesty
1918



CONTENTS

	PAGE
STATISTICAL STATEMENT, 1916-17	6
ANNOUNCEMENT OF SUPERINTENDENT	9
WOMEN'S INSTITUTE PROVINCIAL COMMITTEE	12
EASTERN ONTARIO CONVENTION, OTTAWA, 1917	13
Branch Institute Reports	14
Address of Welcome: MRS. ADAM SHORTT	17
Reply to Address of Welcome: MRS. R. V. FOWLER	18
Report of Superintendent	19
The Feeble-Minded: DR. MCMURCHY	22
Discussion of Branch Work and Reports	23
Patriotic Work: DR. MARGARET PATTERSON	27
Rupert Brooke's War Sonnets: DR. HELEN MCMURCHY	30
War Service by Women: DR. JAS. W. ROBERTSON	33
Discussion of District Work	41
Report of Resolutions and Nominating Committees	42
Luncheon Toasts	42
Victory Loan: HON. N. W. ROWELL	44
WESTERN ONTARIO CONVENTION, LONDON, 1917	48
Branch Reports	48
Report of London Gardening Association: MISS CARLING	49
District Reports	51
Address of Welcome: MRS. DONALD MCLEAN	52
Reply to Address of Welcome: MISS K. MCINTOSH	53
Report of Superintendent	54
Communicable Diseases: H. W. HILL	56
Banquet Toasts	61
Story Hour for Children: MISS NICHOLL	64
Conservation: DR. BACKUS	65
Victory Loan: SIR GEORGE GIBBONS	69
Address: MRS. J. E. BRETHOUR	71
Address: MR. A. R. G. SMITH	72
Report of Resolutions Committee	73
Discussion on District Work	75
Discussion on School Conditions	76
Committees Appointed	79
CENTRAL ONTARIO CONVENTION, TORONTO, 1917	80
Address of Welcome: MRS. TORRINGTON	80
Reply to Address of Welcome: MRS. J. W. MCMASTER	81
Food Conservation: HON. W. J. HANNA	82
Food Pledge Cards: MRS. G. A. BRODIE	90
Branch and District Reports	92
Address: SIR WM. HEARST	96
The Challenge of the Boys Overseas to those who Serve at Home: CAPT. BISHOP	101
Address: MRS. H. W. PARSONS	105
Communicable Disease. MAJOR J. G. FITZGERALD	109
Thrift in Purity: DR. MARGARET PATTERSON	118
Discussion of Branch Work	120
The Women's Institutes of Western Canada: MRS. J. MULDREW	122
Prince Edward County Report	124
Visiting Branch Institutes: MRS. GOULD	125
What the Women's Institutes can do to Help in the Public Schools: DR. H. R. BURGESS	126
Report of Western Ontario Convention: MRS. G. EDWARDS	130
Report of Eastern Ontario Convention: MRS. R. FOWLER	131
Address: DR. G. C. CREELMAN	133
Thunder Bay District Report: MRS. GRATTON	136
Address: MRS. STOBART	137
Report from West Northumberland: MRS. ALLEN	140
Address: MISS M. V. ADAMS, Nursing Sister	142
Address: SERGEANT W. TURLEY	144
Report on Little Current Clinic	145
Medical Inspection of Schools: DR. MACKENZIE-SMITH	146
County of Middlesex Women's Institute and Red Cross Canning Centre	150
The Needs of the Country Boys and Girls: DR. J. B. DANDENO	153
Supervised Playgrounds: MRS. S. G. COLE	155
The Girls in the Institute: MISS E. M. CHAPMAN	159
Temiskaming Institute: MRS. H. PARSONS	164
Report of Nominating Committee	165
Report of Resolutions Committee	165

Hastings, North.	336	2,269	101,582	75	86	00	97	00	3,001	633	3,767	38	59	60	82	48	99	04	51	85	.....	5	42	2,832	84	3,131	23	636	15		
Hastings, West.	240	117	2,324	53,336	52	47	75	736	00	1,760	652	2,880	92	5	65	15	00	15	41	13	75	12	25	1	95	2,351	67	2,415	68	465	24
Huron, East	223	132	2,786	74,331	39	54	75	488	00	2,546	523	4,21	46	22	50	50	35	80	12	75	2	50	1	50	2,501	63	2,627	18	794	28	
Huron, South	86	39	694	25,178	60	21	50	500	85	375	681	1,076	63	16	20	13	00	8	19	4	00	4	65	2	85	864	78	913	67	162	96
Huron, West	379	102	3,239	125,452	51	99	25	418	94	3,184	93	4,155	63	110	15	7	08	44	00	38	72	25	60	9	75	3,412	22	3,647	52	508	11
Kenora	143	37	1,039	39,197	90	36	75	28	00	1,612	951	1,875	60	9	91	20	45	7	28	.....	.....	14	00	.....	1	619	87	1,671	51	204	09
Kent, East	330	119	2,123	97,412	51	77	25	80	00	1,164	781	734	54	21	70	77	00	43	94	41	22	90	.....	1	285	101	1,469	86	264	68	
Kent, West	507	153	3,928	142,678	08	117	00	280	00	3,231	134	3,06	21	19	25	58	95	49	44	56	83	6	65	3	75	3,199	10	3,393	97	912	24
Lambton, East	498	145	3,116	157,563	43	125	00	283	00	2,241	173	2,12	60	87	55	61	50	32	75	31	20	10	95	2	216	00	2,429	95	782	65	
Lambton, West	342	188	3,127	80,315	77	89	50	234	40	1,624	582	2,64	25	11	00	31	20	27	86	29	97	20	40	18	181	1,653	71	1,792	32	471	93
Lanark, North	292	89	2,091	25,559	41	71	25	282	00	2,763	253	3,475	91	41	75	10	00	19	45	40	00	18	85	3	75	2,900	52	3,025	67	450	24
Lanark, South	279	133	2,197	56,295	34	68	75	108	25	1,808	022	2,80	36	20	50	33	50	22	44	20	77	18	85	1	171	1,893	03	2,020	26	260	10
Leeds, South	258	73	2,088	99,331	48	62	00	71	00	1,847	922	3,12	40	24	22	29	50	18	24	20	35	2	50	2	00	1,738	69	1,855	50	476	90
Leeds, North and Grenville	248	56	1,295	49,228	92	67	25	71	00	1,868	85	2,236	02	19	95	15	00	24	37	17	20	9	69	3	29	1,813	59	1,903	09	332	93
Lennox	212	45	1,315	47,967	74	53	00	81	00	555	25	785	99	7	35	15	00	14	73	21	75	12	75	8	65	651	38	731	61	54	38
Lincoln	443	75	4,621	74,619	93	110	50	72	00	5,927	48	6,729	91	14	95	66	80	16	89	25	80	4	85	.....	5	795	82	5,925	11	804	80
Manitoulin, East.	174	102	1,633	126,270	65	44	25	64	00	559	52	938	42	4	00	45	50	10	99	4	43	10	50	.....	453	94	529	36	409	06	
Manitoulin, West	91	111	1,938	167,171	68	36	00	67	00	746	44	021	12	31	03	33	00	43	62	9	50	4	60	20	68	633	66	775	49	245	63
Middlesex, East.	533	87	2,811	79,313	15	127	50	75	00	3,448	093	963	74	38	50	43	25	22	47	11	49	4	60	14	65	1,926	36	2,061	32	1902	42
Middlesex, North	471	118	3,041	94,191	47	109	75	193	00	4,587	935	082	15	53	45	30	00	58	25	31	85	12	45	.....	4	136	68	4,322	68	759	47
Middlesex, West.	399	122	2,411	118,495	40	75	25	205	00	1,403	162	1,78	81	33	51	57	40	25	28	32	67	15	90	3	75	1,587	73	1,756	24	422	57
Monck	428	119	3,041	116,266	23	106	00	1286	14	1,589	083	2,47	45	4	00	53	50	45	32	42	30	10	65	.....	2	752	16	2,907	93	339	52
Muskoka Centre.	60	38	509	21,389	86	15	25	34	00	148	26	587	37	.....	.....	10	00	6	64	2	00	.....	6	00	338	77	363	41	223	96	
Muskoka, North.	197	114	1,379	38,218	54	49	25	76	00	559	29	903	08	6	00	36	60	12	67	1	90	3	50	.....	459	24	519	91	383	17	
Muskoka, South.	266	141	1,590	95,605	75	66	25	120	00	2,407	883	1,99	88	47	15	53	00	31	23	29	90	10	25	14	50	2,412	13	2,598	16	601	72
Nipissing, East.	55	24	499	9,907	78	13	75	6	00	102	40	152	93	3	25	.....	.....	2	28	.....	.....	.....	.....	.....	.....	131	96	137	49	15	14
Nipissing, West.	36	20	242	5	9	96	9	6	00	111	36	136	32	.....	.....	.....	.....	9	00	.....	.....	3	00	.....	.....	112	68	124	68	11	64
Norfolk, North	434	135	3,069	141,308	87	108	50	92	00	972	171	481	54	16	80	51	10	20	37	48	14	11	20	.....	1,033	96	1,181	57	299	97	
Norfolk, South	153	64	1,341	52,110	70	39	75	175	30	919	161	2,44	91	6	50	23	00	14	70	15	50	4	00	.....	982	72	1,046	42	198	49	
Northumberland, East	445	105	3,515	147,498	63	110	00	277	50	3,040	383	926	51	53	35	88	75	40	91	54	69	37	45	22	25	3,193	78	3,491	18	435	33
Northumberland, West	314	116	3,242	150,370	03	78	25	83	00	2,273	322	804	60	23	05	90	65	84	02	30	12	14	25	38	86	2,281	88	2,562	83	241	77
Ontario, North	197	101	1,860	78,313	86	54	00	292	82	1,022	421	683	10	4	00	37	15	39	23	27	45	13	10	.....	1,325	13	1,446	06	237	04	
Ontario, South	385	123	3,238	110,204	65	95	75	103	39	2,042	91	2,446	70	12	45	64	00	20	66	31	90	14	50	2	25	1,690	18	1,835	94	610	76
Oxford, North	238	65	2,015	70,263	72	79	25	64	00	881	621	1,288	59	11	00	40	00	4	43	13	05	9	20	3	55	891	13	972	36	316	23
Oxford, South	317	75	3,832	81,164	06	79	25	107	00	2,444	132	794	39	47	06	72	45	50	66	80	45	10	55	3	45	2,177	08	2,441	70	352	69
Parry Sound, N.	119	65	690	58,223	95	33	25	52	00	606	50	915	70	11	00	30	00	10	96	6	55	4	40	24	50	1,642	21	729	62	186	08
Parry Sound, S.	155	83	1,005	19,171	12	39	00	58	00	1,929	71	2,196	83	23	75	1	60	42	00	10	51	5	50	2	25	1,579	51	1,665	12	531	71
Parry Sound, W.	83	35	545	22	21	52	18	25	9	00	270	38	319	15	.....	.....	.....	5	73	3	00	.....	4	50	261	86	275	09	44	06	
Peel	605	148	4,197	138,103	77	134	50	331	00	3,756	285	2,555	55	22	25	68	15	129	68	70	20	22	30	6	60	3,986	85	4,307	03	928	52
Perth, North	195	71	2,150	63,388	41	51	00	43	00	1,836	82	2,319	23	8	80	5	85	20	32	29	95	10	10	3	85	1,992	25	2,071	12	248	11
Perth, South	340	102	2,378	112,432	86	77	75	297	00	1,206	91	2,014	52	27	84	42	00	37	75	22	50	23	45	.....	1,329	22	1,482	76	531	76	
Peterboro', East.	136	44	851	26,371	91	23	75	52	80	784	09	1,232	55	.....	.....	15	00	16	65	18	53	.....	.....	.....	.....	851	14	901	32	331	23

STATISTICAL REPORT OF ONTARIO WOMEN'S INSTITUTES FOR THE YEAR 1916-17.—Continued.

Institute District.	Membership.	No. of meetings held.	Total attendance.	Receipts.				Expenditure.										Total expenditure.	Balance.
				No. of papers read or delivered.	Cash on hand per last report.	Members' fees.	Grants.	Miscellaneous.	Total receipts.	Expense for meetings.	Officers' salaries and expenses.	Postage and stationery.	Printing and advertising.	Lecturers' expenses and wages.	Books and periodicals.	Miscellaneous.			
					\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Peterboro', North	145	18	256	8	51 08	12 25	21 92	12 15	97 40	.....	.....	1 82	24 49	.....	15 00	27 19	2 318	2,496	51 14
Prescott.....	96	12	302	452	52 19	75 10	00 2,619	47 8,101	74 16	.....	.....	153 36	31 73	.....	.....	65 2	496	50 605	24
Prince Edward..	657	157	4,704	161	425	29 176	75 588	506	928	627 219	14 75	38 50	21 47	3 70	.....	6 475	99 6,628	84 590	32
Rainy River....	294	149	2,588	109	132	12 80	00 91	00 563	97 867	09 65	48 27	82 29	79 8	50 2	3 75	576 10	713 44	153 65	
Renfrew, North.	152	58	1,037	97	123	72 37	55 00	876	22 1,092	69 6 84	9 55	13 02	20 05	13 02	20 05	641 18	727 14	365 55	
Renfrew, South.	242	119	2,119	91	212	74 59	00 91	00 1,368	44 1,731	18 11	28 00	6 84	17 75	6 70	75 1	436 55	1,483 29	247 89	
Simcoe, Centre..	334	138	2,665	117	209	27 80	00 104	00 1,077	71 1,470	98 8 11	60 35	16 94	22 69	18 60	55 1	1,051 71	1,178 95	292 03	
Simcoe, East....	685	198	5,017	143	452	10 167	00 131	00 3,284	73 4,034	83 16	85 75	30 03	67 66	6 65	9 70	1,329 52	1,406 02	260 32	
Simcoe, South ..	203	80	1,408	76	373	51 57	25 83	00 1,152	58 1,666	34 13	30 31	10 12	45 7	80 2	2 15	9 70	1,329 52	1,406 02	260 32
Simcoe, West ..	269	114	2,782	127	456	08 64	50 357	00 2,774	76 3,653	34 14	40 44	00 112	98 21	85 83	15 44	30 3	1,053 49	3,374 17	278 17
Stormont.....	151	69	1,250	3	210	62 37	75 264	00 1,626	20 2,138	57 37	20 37	7 00	3 78	7 00	2 20	171 19	225 76	64 83	
St. Joseph Island	125	22	352	17	38	69 15	75 22	00 214	15 290	59 1 05	15 00	13 27	7 00	16 05	2 20	171 19	225 76	64 83	
Temiskaming ...	351	216	4,610	95	332	19 92	50 136	00 1,657	85 2,218	54 63	91 26	50 60	14 2 65	2 00	.....	1,546 81	1,702 01	516 53	
Thunder Bay ...	315	119	2,866	118	187	63 74	75 151	00 1,281	17 1,694	55 9 05	31 00	28 58	15 10	.....	14 49	1,304 50	1,402 72	291 83	
Union.....	107	26	525	24	55	99 26	00 290	50 239	89 612	38 3 25	31 00	2 87	15 16	4 75	24 05	415 03	496 11	116 27	
Victoria, East ..	243	119	3,409	144	168	21 60	75 89	00 466	41 784	37 7 50	50 00	20 42	20 99	.....	4 20	558 55	661 66	127 71	
Victoria, West..	423	143	4,111	102	531	67 109	50 150	00 2,804	55 3,595	72 32	46 57	98 56	62 56	13 6	3 00	2,645 21	2,858 00	737 72	
Waterloo, North.	231	82	1,983	108	486	50 76	75 68	00 3,424	96 4,056	21 43	67 63	15 26	12 23	60 33	70 32	95 2	1,756 67	2,459 94	798 48
Waterloo, South.	321	116	2,611	156	187	83 114	00 809	98 1,923	59 3,218	42 45	00 136	90 26	22 31	60 31	60 31	82 95	2,700 30	2,000 46	191 20
Welland.....	421	161	3,520	192	370	85 114	00 92	370 85 114	00 92	370 85 114	00 92	370 85 114	00 92	370 85 114	00 92	370 85 114	00 92	370 85 114	
Wellington, Cent.	216	69	1,433	50	292	68 54	75 791	00 1,323	63 2,462	06 13	25 48	95 30	11 28	85 12	80 19	86 1	982 84	2,083 96	166 81
Wellington, East	263	85	2,687	162	119	67 65	25 407	00 1,638	85 2,250	77 40	25 50	15 9 74	14 85	12 80	23 50	2,713 90	2,965 15	285 85	
Wellington, South	206	56	1,556	63	385	20 49	1015 00	1,801 30	3,251 00	40	25 50	15 9 74	14 85	12 80	23 50	2,713 90	2,965 15	285 85	
Wellington, West	464	95	2,083	107	551	17 11 75	520 00	1,951 33	2,234 25	55	23 39	00 38	08 32	15 6 70	.....	1,539 06	1,710 22	524 03	
Wentworth, N...	493	155	5,139	196	712	56 121	75 247	00 2,402	14 4,023	45 48	86 107	57 38	65 31	60 8 80	.....	3,169 35	3,404 57	618 88	
Wentworth, S...	500	135	3,540	136	946	62 123	75 107	00 2,629	11 3,806	48 97	86 48	30 74	60 31	60 31	3 72	2,770 55	3,035 38	771 10	
York, East.....	344	130	3,060	137	457	83 86	50 107	50 4,135	43 4,787	26 15	35 50	45 39	88 27	48 14	53 3	15 3	793 57	3,944 41	842 85
York, North....	401	135	3,527	120	167	24 95	50 101	00 2,234	83 2,598	57 120	65 70	80 38	96 49	35 11	25 10	27 1	852 69	2,153 97	444 60
Totals.....	28,991	9,826	226,819	9,138	30,896	7,156	20,038	176,015	234,105	2,520	3,922	3,234	2,474	1,136	781	180	562	194,629	39,476

WOMEN'S INSTITUTES OF ONTARIO

1917

To the Honourable Minister of Agriculture:

SIR,—I have the honour to submit herewith the Seventeenth Annual Report of the Women's Institutes of Ontario, Part I, for the year 1917, the statistical statement for the year 1916-17, and additional information which will be found of interest to the Institute members.

For list of meetings held during the latter part of May, throughout June and early July, together with speakers and subjects, we refer you to Part II, Women's Institute Report.

Since the publishing of the report has been unduly delayed, we are including in the introduction a brief statement of some of the activities for 1918.

At a conference held in the early spring all speakers received the very latest information on war time needs, on the necessity for increased production, and the methods whereby the same might be carried on, from leading authorities and those most closely associated with these special lines of work. In addition to this, each Women's Institute Branch received, from the Department, copies of War Work and Red Cross Bulletins, just as they were published by the Canadian Red Cross Society.

PATRIOTIC WORK.

The Institutes of Ontario consist of 898 (1917-18) branches with a membership of nearly 30,000, and the great majority of these branches have devoted their time, energy and resources to patriotic work. The reports to the Department from year to year have been most encouraging, but never have they been so gratifying as for 1917-18. Practically every woman in the rural districts had to devote a considerable part of her time to assisting with agricultural work, owing to the shortage of labour, still patriotic work increased rather than decreased, and the total value in cash and goods for the year ending with May, 1918, was approximately \$850,000, and while it is impossible to give a complete statement of patriotic work during the period of the war, the records from a large percentage of the Institutes, and an estimate for a few from which complete returns have not been received, show a total of at least \$1,650,000. Naturally, the regular work of the Institutes has suffered, but now that the war is over, we are confidently looking forward to the resumption of a progressive programme with renewed energy.

THE GIRLS IN THE INSTITUTE.

During the last year many girls have realized the value of organization and a number of Junior Women's Institutes have been formed. While the majority have devoted the greater part of their time to Red Cross and other patriotic work, some, in addition to this, are interested in forming literary clubs and reading circles in co-operation with the Junior Farmers' Club. Perhaps, one thing, more than anything else that was instrumental in bringing the girls together, showing them the great possibilities in Institute work and the value of organization, was the holding of Demonstration-Lecture Courses of two weeks' duration each in "Domestic Science," "Home Nursing and First Aid," and "Sewing." Seventy-six Courses were given in 1916-17, with a total attendance of 26,775, and during 1917-18,

seventy, with a total attendance of 14,837. No doubt the members will more generally take advantage of this splendid form of instruction now that the call for patriotic effort is not so insistent. A full realization of the benefits derived should bring applications for one or more courses from practically every locality.

INCREASED PRODUCTION AND FOOD CONSERVATION.

It is very gratifying to note how generously all Women's Institutes responded to any appeals made for increased production and food conservation and substitution, and how readily they took advantage of the various offers made by the Department to assist them in carrying out intelligently the regulations set forth by the Food Control Board. As a result 184 meetings were addressed by speakers on "Back Yard Gardening." Literature was widely distributed and large numbers took advantage of arrangements made with a reliable seed company to supply a collection of vegetable seeds at a price considerably below retail price for the season. Following this, many requested demonstrators in Canning and War Time Cookery, in addition to the circulars which they received on canning, drying and war-time cookery. The establishing of Canning Centres, under the auspices of the Women's Institutes in co-operation with the Canadian Red Cross Society, resulted in a large output of fruit, jams, jellies, pickles and chicken for the soldiers overseas. The results are as indicated in the following table:

Place.	Output.
Barrie	46,799 lbs.
Guelph	22,336 "
Mapleton	18,840 "
Niagara-on-the-Lake	21,781 "
Parkhill	26,238 "
Stratford	14,000 "

The value of the goods put up at the six centres was at least \$35,000.00.

In addition to the above, a beginning was made at Echo Place, in Brant County, and at Grimsby Beach a considerable quantity of jams, soup, etc., was put up for the Aviation Camp at Beamsville.

During the influenza epidemic a number of these centres were used as Community Kitchens, and at one centre meals to the number of 6,337 were sent out.

The community spirit alone which has been developed would seem to justify the establishment of these centres, and this feature of work promises to be one which has in it great possibilities for the future.

MEDICAL SCHOOL INSPECTION.

The Department has been unable to comply with all requests from the branches for Medical School Inspection. Two counties, however (Peel and Lincoln), have been completely inspected, except Brampton and St. Catharines, and over 10,000 children altogether have been inspected this year. You will note from resolutions passed by the members at the Central Convention that they are strongly in favour of some systematic, Province-wide form of inspection. Several Institutes have followed the inspection with clinics, specialists being employed and arrangements made whereby the amount charged each patient was considerably below the regular fee, and for the patients who were unable to pay, the Institutes provided a means of payment.

The Department wishes to express its appreciation of the co-operation of the officers of the Institutes and the hearty support manifested by its members. The success of the work has been due, in no small measure, to the capability, tactfulness, and untiring energy of these women.

Another great factor in the success of the work has been the splendid work done by the lecturers sent out by the Department. Nurses, doctors, domestic science graduates and specialists in other lines of work have been employed.

It is gratifying to note that the great value of the work being done by the Women's Institutes of Ontario is being recognized not only by all other Provinces of the Dominion, but also in the British Isles, where some 800 branches have already been organized, much on the same plan as the Institutes of Ontario.

Many organizations throughout the Province, patriotic, relief and health organizations, appreciate the work that is being done by the Institutes, and feel that the only way by which they can come in contact with all the rural people is through the Institutes. Requests from these organizations are reaching the Department from time to time, for the privilege of circularizing the Institutes in regard to their special work. The Institute is essentially an organization for the whole people, and no rural community can well afford not to have a local Institute through which problems affecting the whole people can be dealt with.

We fully expect that a great many groups of girls and women who have been brought together in war work will be desirous of forming Women's Institutes.

A continued liberal support of the Institutes and the encouragement of the people to undertake those features of work which can only be accomplished by local initiative and support, are to be commended.

Respectfully submitted,

GEO. A. PUTNAM,

Superintendent.

MEMBERS OF PROVINCIAL WOMEN'S INSTITUTE COMMITTEE, 1917-18

EASTERN DISTRICT.

No. of District.	Counties in District.	
1.	Dundas, Glengarry, Prescott, Russell, Stormont	Mrs. J. P. McNaughton, Maxville.
2.	Carleton, Lanark, Renfrew	Mrs. Jas. Reid, Renfrew, R.R. No. 2.
3.	Addington, Amherst Island, Brockville, Frontenac, Grenville, Leeds N. & Gren- ville, Lennox	Miss M. F. Pearson, Merrickville.

CENTRAL DISTRICT.

4.	Hastings, Northumberland, Prince Edward.	Mrs. W. R. Munro, Demorestville, R.R. No. 3.
5.	Durham, Haliburton, Peterboro, Victoria..	Miss E. E. Haycraft, Bowmanville.
6.	Ontario, York	Miss K. McKay, Brechin, R.R. No. 1.
7.	Dufferin, Grey	Miss E. H. Besley, Shelburne.
8.	Halton, Peel, Wellington	Miss H. Beardmore, Pt. Credit.
9.	Haldimand, Lincoln, Welland, Wentworth..	Mrs. L. C. Burns, Caledonia.
10.	Brant, Norfolk, Oxford, Waterloo	Miss Lee McCrae, Tillsonburg.
11.	Muskoka, Simcoe	Miss J. Graham, Elmvale, R.M.D.
12.	Parry Sound, Timiskaming	Mrs. M. J. McArthur, Orrville.
13.	Algoma, Manitoulin, St. Joseph Island, Nipissing	Mrs. G. J. Priddle, Silverwater.
14.	Kenora, Rainy River, Thunder Bay	Mrs. M. Sullivan, Emo.

WESTERN DISTRICT.

15.	Bruce, Huron, Perth, Union	Mrs. J. Patterson, Gadshill.
16.	Lambton, Middlesex	Mrs. J. G. Dawes, Thedford.
17.	Elgin, Essex, Kent	Dr. A. Backus, Aylmer.

Ontario Women's Institutes

EASTERN ONTARIO CONVENTION

The Fourth Annual Convention of the Women's Institutes of Eastern Ontario was held in the Y. M. C. A. Hall, Ottawa, on Wednesday and Thursday, November 7th and 8th, 1917, when a very representative and enthusiastic gathering of the women of Eastern Ontario were present. One of the features of the Convention was a luncheon tendered by the City Council and the Local Council of Women, at the Russell House on Thursday, when Lady Borden, Mrs. Adam Shortt, and the Hon. N. W. Rowell addressed the delegates.

MORNING SESSION, NOVEMBER 7th.

MISS D. M. SUTHERLAND of the Department of Agriculture, Toronto, presiding. The session was begun by singing one verse of "The Maple Leaf Forever."

THE CHAIRMAN: There is one thing which we might encourage a great deal through our Institutes, and that is the value of reading, discussions and debating societies in our respective neighborhoods. The boys and girls of to-day are to be the men and women of to-morrow, and, on account of the war, long before they otherwise would have been, and there are many of our boys and girls who are not going to get the opportunity to attend school and college because of the press of other responsibilities. We should see to it that they improve themselves as much as possible right in their homes. A great deal can be done through reading. A home without books, periodicals and magazines is like a house without windows. Never before was a practical substitute for a college education at home so easy and so accessible as it is at the present time. Indeed, most of our best literature to-day comes in the form of short articles in monthly magazines which one can buy for ten or fifteen cents a copy, and for which the publisher will sometimes pay hundreds of dollars.

Throughout the rural districts, particularly in the winter time, we have a great many social events such as dances and card parties. While I am not here to discourage these, I do say that we should try to spend part of these evenings more profitably so that when the boys and girls go home they will have something to take away with them—something really worth while. We should have a debating society in our neighborhood, and no one can debate well unless they have read widely.

I may say with regard to reading, that we must read with a purpose. Just to sit down and pick up a book listlessly, with no thought but to pass away the time, is almost worse than not reading at all, because it takes the spring and energy out of our mental faculties. As we read, think. And I think it is well to encourage the habit of telling aloud what has been read. We gain in self-expression, and it teaches us to think, and to think to the point.

Then we should have more reading aloud in the home. That is dying out. We can well form the habit in our homes of reading some short article every day and bringing it up for conversation, perhaps at meal time when we are all together.

Here in Eastern Ontario you are noted for your hospitality. Now I ask that you make that manifest at these meetings. We are here for the benefit we can get and the benefit we can give, and it is only as we are come together and speak to one another and discuss the work we are interested in, that we can get the most out of these meetings. Let our ideal here and hereafter be the same as the poet so beautifully expressed it:—

“May every soul that touches mine,
Be it the slightest contact,
Get therefrom some good,
One kindly thought, one aspiration yet unfelt,
One gleam of faith to brave the thickening ills of life,
One glimpse of brighter skies beyond the gathering mist,
To make this life worth while,
And heaven a surer heritage.”

CONDENSED REPORTS FROM BRANCH INSTITUTES.

CONWAY.—This Branch has achieved its degree of success for the following reasons:—

(1) Its realization of practical benefits to be derived from membership in the organization.

In our local Branch the members appreciate the valuable suggestions to be found in the Government bulletins sent to the members of the Women's Institutes from time to time. We realize that those bulletins give us the direct benefit of the scientific research carried on in the department of our vocation.

We availed ourselves of the Government delegate in June last year. This pleasant and practical function at the beginning helped us to give tone to the ensuing year.

The question drawer conducted at each local monthly meeting is highly valued by our members who make it a genuine source of help in peculiar difficulties. We have not known of an instance where a member suppressed a question due to a false pride. The question drawer has proved a direct practical help. It has acted as a stimulus in reminding us that our difficulties and failures have not been particular, but general.

(2) Our Branch owns a good library. Our large membership is noticeably due to this. With membership comes interest and a feeling of responsibility for projects undertaken. We have been surprised more than once at the response from that section of the membership which seldom finds it possible to be at the meetings.

(3) Our meetings are conducted in as businesslike a manner as possible and we adhere very strictly to the injunction of the Superintendent of Women's Institutes that no political or sectarian controversial subject be introduced. By resolutely adhering to this principle we have avoided many of the dangers to which a society of this nature is exposed.

(4) To our mind no other one circumstance created in the Society such enthusiasm and self-realization as the influence of the delegate's report of the Ottawa convention of 1916. She brought back the inspirational idea of the worth-whileness of the possibilities of little societies such as our own. She reported clever, genuine, altruistic women and sympathetic, kindly disposed men, all of whom thought it worth while to give of their time and talent to help our society continue in its work. The Ottawa convention was a big thing and we were made to feel ourselves part of it from beginning to end.

We have done Red Cross work and this has stimulated interest but we think the underlying principle of our small measure of success has been our availing ourselves of every opportunity to keep in touch with the Central Organization of which we realize we are a branch.

GODFREY.—Was organized in December, 1916. Excellent papers were given at the meetings dealing with Home Topics. Proceeds from teas go for Red Cross purposes.

MCDONALD CORNERS.—Has raised during the year 1916-17 \$146 for patriotic purposes. Fifty-four dollars and fifteen cents received from blueberry social, \$61.25 from an autograph quilt and \$25 from sale of ice cream at Agricultural Fair.

NORTH GOWER.—Has 85 members who meet once a month to exchange ideas and help banish the cobwebs from each other's brains. This Branch does no Red Cross work within the Institute. They assist in local charity work, assist the public library and Belgian Relief.

MOOSE CREEK.—Devotes the greater part of its time to patriotic work. Three hundred and thirty-three dollars and eleven cents has been raised through socials alone. Work is received from Red Cross rooms, Ottawa. So far 232 pyjamas, 114 hospital shirts, 12 fractured shirts, 62 pairs socks and 24 pairs slippers have been completed.

POLAND.—Has given for patriotic purposes: cash \$53.00, 157 pairs of socks, 48 pairs pyjamas, 12 hospital shirts, 2 members send a box each week to a soldier in the trenches. Cash sent to Y. M. C. A., \$40; \$2 worth of groceries sent to a poor family.

VANKLEEK HILL.—With a membership of 96 commenced the year with \$452.52, made \$2,649.22, and ended with a balance of \$605.24.

BOWESVILLE.—Devotes its energies to the raising of funds for patriotic purposes and also to the improvement of schools. A tea and concert was given in the school to raise money to buy kindergarten equipment, and to defray the cost of installing sanitary toilets in the basement of the school.

SPENCERVILLE.—Raised \$1,059.89 during the year, \$525 of which was raised by subscriptions. Besides donations of cash to various patriotic needs, bales of goods, quilts, socks, shirts, pyjamas, pillows, etc., were also sent.

AMHERST ISLAND.—Sent 36 Christmas boxes to boys overseas, valued at \$3.25 each. This Branch receives much assistance from "The Little Allies," a club of girls from the High School, and from the senior forms of the Public Schools of the township.

GLASGOW STATION.—Women regretted that not as much patriotic work as they had planned for could be carried out, owing to the fact that so many of the women had to work in the harvest field. This, however, is patriotic work in the truest sense of the term. Fifty-nine dollars was sent to the Prisoners of War Fund. Quilts and clothing were sent to the French Relief and to fire sufferers in Northern Ontario.

MRS. REID, Bonnechere Valley: I would like to ask a question on the reports given by Glasgow Station and Conway, especially the latter. I want to know how they carry on their question drawer.

DELEGATE FROM CONWAY: The question drawer is one of the features of each of our meetings. The ladies in our community find the Institute meetings more interesting than any of their church meetings or meetings of other societies.

The President always takes the responsibility of bringing little slips of paper with her, and these are distributed by the Secretary, and each member writes on this slip any question she wishes answered or any difficulty that she has had during the month, and then someone present is appointed to take up the question drawer. Taking up the question drawer simply means that the woman in charge reads the question, and answers are volunteered from the members.

THE CHAIRMAN said that at one Branch where she visited the questions were taken up at one meeting and answered the next by someone who was responsible for the answers.

MRS. DUMMERT: We have about 85 members in our Branch. At every meeting we call the roll, but if any member has not paid her fees, her name is not called, and we find that a first-class method of collecting all the fees.

A member from Perth said they had built a swimming pool for the children. About 150 children attended the pool this past season, and although very few of them could swim before, they had all become like little ducks. To raise funds to keep the tank going, Col. Balderson had loaned his theatre, and the Institute had raised \$40 in that way.

A member from Beachburg: I was instructed by my Institute to ask which would be the best convalescent home to send a shower of cooking and baking which our Institute is going to give. We may have more than one shower, and it might be well to know more than one convalescent home:—

St. Flemings Convalescent Home.

Queen's Military Convalescent Hospital, Kingston.

Cobourg Military Convalescent Hospital, Cobourg.

Richardson Military Hospital, Kingston.

DELEGATE FROM ELGIN: We had a meeting this fall at which our girls brought their fancy work and cooking and bread and such like for an exhibition, and we gave prizes for the best. Everything turned out splendidly, and it caused a great deal of interest.

DELEGATE FROM ATHENS: This year we conducted a school fair for the pupils of the public school. At the April meeting a committee of three was appointed to look after that particular work. We bought eight kinds of vegetable seeds and eight kinds of flowers, and distributed them amongst about 64 pupils, and they had splendid success during the year. We had 216 exhibits in fancy work alone. To show you the interest the pupils took, one of the girls made 19 exhibits. The ladies took seed from the Government this year, and a committee decided on the three best gardens, and their names were put up in the town. To defray the expenses of the prizes, a concert was given by the children in the Town Hall. There were no grown people on the platform, which delighted the children very much. We took in enough to defray the expenses of the school fair and had \$20 over for Red Cross.

AFTERNOON SESSION.

MRS. R. G. LEGGETT, Newboro, presiding.

The meeting was opened with the singing of "The Maple Leaf," after which the REV. A. W. MCKAY, of Ottawa, led in devotional exercises.

ADDRESS OF WELCOME.

MRS. ADAM SHORTT, OTTAWA.

It gives me the greatest pleasure to again have the honor of bidding you welcome to Ottawa. As I have said before, I have the greatest appreciation of your work and your value, as making for the highest interests of nationhood.

You of the country need us, and we of the city need our sisters of the country. All our altruistic work is in common, has its origin in the same fundamentals, partly religious, partly maternal, but altogether humanitarian. Since the war began there has been an increase in our union in activities. There has been quite a new "getting together." Even in cities the lines of social cleavage have been greatly bridged. There has been an increasing breadth of view that saw that the object to be attained was the main thing, and not whether Mrs. Brown or Mrs. Jones had the distinguished honor of bringing it about. Heaven speed the day when all women (and men too) who work for others will have reached that high level of intelligence where self-esteem, love of public mention, etc., will be submerged in the common purpose and the common good.

The food supply question in which you have such a basic interest is now the Reserve Army question. If we fail to produce all that we can or fail to save all that we can or to give all that we can, then the Reserve Army breaks down, and our men will have to fall back! All the dead and all the living in these blood-soaked fields of Flanders call to the women of this Reserve Army to "stand by." You have done what you could in producing food supplies and have done your share of Red Cross supplies, but you will do more. Urge on other women the necessity of thrift, of saving, of economy to the last ounce, and to the last farthing, so that the saving of many put together may make the difference between not enough and enough. Our defenders in Flanders have "got together" on a common ground of struggle as brothers in arms. The men there have seen all the nakedness of life and death! These men, as one of our returned heroes has said, "have gone through hell, to hell's rim on the far side," and are coming home to what? Not surely with fat competency and selfish indulgence as the goal of their ambition? Many of our men will return with new ideals of life, a new vision as to what makes for national well-being—and a new appreciation as to what are the foes in the body politic. May we not in that time of reconstruction count on a new "getting together?" May we not hope to have when these men come home, a reviving force which will co-operate with all those who have been doing public service in fighting against the foes within that drag down national efficiency? The highest standard of national welfare is when the highest possible per cent. of its people are at their highest possible efficiency. Whatever drags down or deters from reaching this level can be counted as an enemy of the country.

Feeble-minded people at large are the greatest potential enemy to national welfare in any community. It is estimated that about fifty per cent. of the prostitutes, and also the most active agents in spreading venereal disease, would be removed, if the feeble-minded could be segregated and thus prevented from reproducing their kind. These related evils ought also to be counted as an exigency of war, and be subject to restrictive legislation. With more than thirty thousand of our physically fit dead in Flanders, and many more to be added to their number, shall we allow their places to be filled by the feeble-minded and their progeny? While we must keep our minds and energies strung to the great

issue, we must think seriously of what makes for the best national upbuilding within. The army of men and women who have been fighting national enemies at home will hope for great progress in raising the standard and the quality of Canadian life when they have added to their forces, the men who return after the war, with new valuations and new visions.

"By all the golden youth that's fled,
By all the dreams that lie
Where war has laid the quiet dead,
Under an Alien sky."

We are all called to the colors for National Service, in which I greet you women of the Institute, in the name of Ottawa women, as a vital and efficient working force.

REPLY TO ADDRESS OF WELCOME.

MRS. R. V. FOWLER, PERTH.

MRS. FOWLER after acknowledging the gracious words of welcome given by Mrs. Shortt, and expressing appreciation for again being privileged to have an Eastern Ontario Convention, said:—

We are realizing every day that we belong to a very potent factor in the life of our country. Our Institutes are becoming better known all the time through the work we are doing. You do not find nearly so many people who are now saying, "Well, what is the Women's Institute anyway?" You can scarcely pick up a daily paper without finding an account of what some Branch is doing and very often we find very nice things said of us. It is our part to see that these things are merited.

The spirit of service, sacrifice and patriotism that is abroad in the land has brought out the best that is in the Canadian people, and our women have shown that they are capable of the highest. In service for the men at the front they are untiring—in sacrifice who can compare with the mothers, sisters, sweethearts of our land? And their patriotism is not of the flag-waving and shouting variety, but of the kind that is ready to do, or die for the right.

This year our Institutes have been asked to help in another form of patriotic work, the conservation of food, a work which will appeal to most women, as they are virtually the food controllers of the country. It is an honor that the Institute has been thought to be one of the best means of reaching the mass of the women in this question, and I trust that each Branch will help the Food Controller in every way possible, and thus do its bit in helping to win the war.

In looking over the work of the Institutes, I find that not all the energy and activities of the members have been taken up with the Patriotic and Red Cross work but that a certain amount of time has been spent in our regular Institute work. Then we have to consider that our Institute will be here when this war is over, and we pray it may be soon over, and we must be ready to re-adjust ourselves to the conditions that will be sure to follow after the war's upheaval.

It is more necessary than ever before, that we, as Institute members, should go back to our study of food values, to our study of hygiene and sanitation which will help us in these very difficult times to do the best we can for our country's life.

We have all united in a spirit of goodly fellowship, feeling the great need of mutual help and sympathy in our work in this time of national stress, and

endeavor, and the interest of the women of-Ottawa in our work will be an added inspiration to us in our discussions here, and a spur to our work at home in the coming year.

DR. PATTERSON: How did you find the food pledge cards generally received throughout the country?

MRS. SHORTT: In various cities they had various experiences; it depended partly on the charm and wisdom of the distributor as to how many she got signed. Of course there were many objections. The object was to get every housekeeper enlisted in the conservation of food, and to point out that there were three things particularly that were needed—beef, bacon and wheat. The Controller never asked anybody to go hungry, but he asked you to conserve food, to the extent of eating bacon at five meals in the week instead of seven, and so far as possible substitute some other cereal for wheat which is needed for our allies. Mr. Hanna wanted you to understand it was a necessity, not a fad, not a political propaganda, not a chimera; it was a ghastly reality that the Allies had to have more beef, bacon and wheat, and the only way to get it was for the people on this continent to save one-quarter of what they usually consumed.

A DELEGATE: What is the composition of oleomargarine?

MRS. SHORTT: It is beef fat, and beef fat in its final elements consists of oleo, margarine and stearine, but stearine has a strong beefy taste, which they leave out, so that oleo and margarine were worked up by a process of milk, and it made a substitute for butter except that it was white in appearance. Then as time went on, they found vegetable oils could be worked in to give it the appearance of butter.

REPORT ON THE WORK OF THE WOMEN'S INSTITUTES.

GEO. A. PUTNAM, SUPERINTENDENT, TORONTO.

In planning for this Convention three things impressed themselves upon me: First, the great importance of the work which you are doing to-day and which you were doing before the war broke out; second, the great magnitude of the activities of the Women's Institutes both in members and variety; and third, the wonderful possibilities which lie before the women of the Institute in Ontario and the other Provinces of the Dominion.

The importance of your work has been emphasized by developments during the progress of the war, and while I am convinced that the women of the Institute are as energetic and diligent and faithful and self-sacrificing as any body of women in war work, I am mindful of the fact that the change from normal to wartime activities has possibly been less radical in the Institutes than in any other organization. They have been thrifty and economical from the first. When the women of the cities and towns began to consider war work, especially war work in so far as food values and food conservation were concerned, they inquired as to what the women of the country were doing, and they found they had to go to the Women's Institutes to get the information desired, to get information of value to guide them in a judicious choice and use of foodstuffs. Those who study food requirements and economic conditions are impressed with the importance of the production of food and the judicious balancing of the agricultural and manufacturing efforts of a country like Canada. When the demands of the war began to force themselves upon us, this readjustment became all the more necessary. Who of

us would have thought four years ago that the people of this country would be asked to save certain kinds of food and above all things to lessen the amount of wheat that they were to use in their own household? It is startling to-day; it would have been more startling at that time, and yet we find that is the essential thing.

The speaker made reference to the great shortage of meat producing animals in the European countries and emphasized the necessity of conservation of beef and bacon.

I need simply to state to the women of the Institutes that there is a need for Red Cross supplies, etc., just that there is a *need*, and they will respond, respond as best they can, respond to the point of self-denial and sacrifice. *There is a great need at the present time.* You remember in the early history of the war, there was a call for pillows. We did not ask this Institute to gather up so many and that Institute so many, but simply asked for pillows, and we got more pillows than we knew what to do with. I believe all we have to do is to state to the good women of the country that there is a need for food production and conservation and they will respond. You can work out ways and means.

The speaker here made reference to the Production and Conservation campaign reported upon in the introduction to this report.

The women of the rural districts are becoming vitally interested in practical agriculture. In many cases they are taking an active part in many of the lighter forms of agriculture, and some of the heavier forms also, such as driving the heavier machinery, especially in Eastern Ontario. I have had letters from a number of women who said they could not devote much time to Red Cross work and Institute work because they had to do their small part—sometimes their large part—in saving the crop, and in some cases in putting it in, and carrying on the regular work of the farm.

After a reference to the co-operative action of the Institutes in establishing a canning centre at Parkhill and carrying on Medical School Inspection in Lincoln County the speaker said that the *material* results from co-operation are alone a justification for the establishment and support of the Institutes. The result of the greatest value, however, so far as the future of the nation is concerned, lies in the fact that you are incidentally teaching yourselves and the people as a whole—men included—how to co-operate and assist each other in doing the many things of value which cannot be accomplished by individual effort. That organization which can succeed, as the Women's Institutes have succeeded, in securing co-operation and personal activity on the part of all classes and sects in a community, is creating a force for the moulding of public opinion and the carrying into effect of their convictions which has not heretofore existed. The strength of the Institutes in the past has been due largely to the fact that you have been unanimous and united, and I have faith in the good judgment and wise action of the band of women which have been united in the Institutes to see to it, that the development of the many features of important community work which will naturally be introduced and supported by you, are not hindered in any way by partyism, sectarianism, class distinction, or the introduction of unnecessary controversial discussion. I have great faith in the deliberations of a band of such women as we have in the Institutes, women who have had experience in doing those things which have been shown to be the most essential under war conditions—the production of foodstuffs, the choice and preparation of nourishing foods, the care of the young and the sick, the housing and clothing of the family, safeguarding the morals of the community. etc.

I was impressed also in planning for this convention with the *magnitude* of the work. That has been in part indicated to you by the excellent reports which have been presented. Variety is the spice of life, and there is an endless variety in your work. We might divide the activities of the Institutes into three classes, home, community, and national. When the Institutes started, we thought the home alone was sufficient to take the whole attention of the women, but it was unnatural for motherly women; thoughtful, progressive women, to confine their thought and action to the feeding and clothing and housing of the family, and the production and conservation of food, without sooner or later extending their activities to community interests. In community interests one of the first to claim attention is the school. The Institutes in Eastern Ontario have been more progressive along the line of school improvement than in any other section of the Province, except in the matter of Medical School Inspection.

Then in regard to national matters I am confident that the women of the Institutes, especially since they will have the co-operation of many other women's organizations, will see to it that, with the added power which they now have through the franchise, the laws of the land, especially those affecting women and children, are amended to meet present-day conditions.

What about our numbers? The membership is about the same as a year ago. Where an Institute has taken complete charge of Red Cross and other patriotic work, the membership has usually increased, but where they have thrown in their lot with other organizations, the Institute has in some cases suffered a temporary loss in membership. The splendid spirit shown by the Institutes in this matter will re-act in favor of them when the war is over; and you will be asked to take charge of many lines of work which will naturally fall to the lot of the women of Ontario to organize and carry on in the towns and villages and rural districts.

POSSIBILITIES OF THE WORK. In planning for the Annual Conventions, we review many excellent reports of the work from those who had been asked to prepare a special report for the occasion. The great possibilities shown in these reports rather mystify one. Mere figures I know would not interest you so far as the patriotic work in Eastern Ontario is concerned; Spencerville this morning reported they had given over \$1,000 during the past year, and we have many branches in the east which are surprising themselves, I am sure, in the large amounts which they are able to contribute to Red Cross and other patriotic effort.

Just a word regarding Medical School Inspection, which will receive more definite attention at our Toronto Convention. We hope to be able to place before the Convention at Toronto, and through a committee appointed at that Convention, place before the Government facts and figures as to the conditions in the rural districts, smaller towns and villages which will surely result sooner or later in some feasible plan being adopted whereby a large number of ailing children in the rural districts may receive that attention which they are so much in need of.

Reference was here made to Medical School Inspection, Work of the Girls in the Institute, and Demonstration-Lecture Courses.

The Institutes in Eastern Ontario have shown a business-like systematic way of handling their work, and I wish to compliment you upon the splendid reports which you have sent to the Department. You would hardly think that it is the same band of women who sent in reports eight or ten years ago. You are certainly developing in business methods, and I am glad indeed to note from the reports reaching us from time to time and from the reports presented here to-day, that while you are doing your share in patriotic work, you are still keeping up

the regular Institute work to a sufficient extent to insure a continuation of aggressive efforts when the need for patriotic work has passed.

The speaker made an appeal for every person to assist in the campaign for increased production and conservation, and while the appeal which has been made through the Food Controller to sign the Pledge Cards has not been responded to as we would like, I know it is because of lack of a full understanding as to the real object and an appreciation of the real need. I am confident that the women of the Institutes will be prepared to do their share in responding to such appeals, whatever that share may be.

You will remember, ladies, that Mrs. Shortt emphasized the seriousness of the biggest problem we have before us, that of the feeble-minded, and I hope that Dr. MacMurchy who has just come in the room, and whom we are very glad to see, will say a few words along that line or any other line of interest to you as Institute members.

THE FEEBLE-MINDED.

DR. HELEN MACMURCHY, TORONTO.

I cannot allow an opportunity to pass without making reference to that all-important subject, the feeble-minded.

I can only say to you that the only thing that counts next to really getting something done, is public opinion, because public opinion means that something will be done to-morrow. Great advances have been made during the last few years. Last night I could hardly get away from a club of some society ladies in Toronto who had been good enough to ask me to address them on the subject. They asked me so many questions about the feeble-minded and were so interested that I felt really greatly encouraged, and it seemed to me quite inspiring to realize that every one of them knew more about the subject than I did when I undertook to understand it twenty years ago.

There is a great disposition on the part of the public now to take hold of anything that means national service, and the public have realized that if we take care of the mental defectives, it would be a good thing for the nation, and especially for that part of the nation who will come on the scene and control everything, manage the Women's Institutes, vote by ballot, sit in the councils of the nation, when the present generation has passed away.

Our eyes must very largely be fixed on the interests of Canada in the future. It is really for the children of this generation that the Great War is being fought. It is for them more than anyone else that we have made up our minds that the world must be saved for them, and when we have peace it must be a peace in which we shall have as sure a guarantee as anything earthly can be made sure that there will be no wars like this again.

It is because mental defectives will affect Canada in the future that people are persuaded to take this question up, because it stands in causative relationship to so much of our trouble. I have just passed certain buildings in Ottawa that are devoted to the care of those who have broken the laws. Why should we have something like 20 per cent. in these institutions that really are not law breakers, but who have not sense enough to understand about the law? And it is the same with pretty nearly every public institution that you mention. A good part

of the money of the country (more than you think) is being spent without much result because we do not look into the causes of things.

I have to congratulate you upon your meeting, to express my great interest in all your proceedings and to thank you again for your kindness in giving me an opportunity to speak.

DISCUSSION OF BRANCH WORK.

DR. MARGARET PATTERSON, TORONTO.

I am sure it is always a pleasure to have the opportunity of meeting with the women of the country because they are taking hold of things and doing them. I think we had the keynote for our work given to us to-day by Mrs. Shortt when she said "get together." That is one of the great privileges of the Branch Institute. When we get together in the right spirit to think over the problems of the community, the things that are most vital to the community are not going to be forgotten.

There is absolutely nothing of so much importance to the nation as the child. Probably there never was a time when the value of a child to the state was as great as it is to-day, and one of the lessons we are learning by this terrible war is the number who are physically not up to the standard demanded of them for war, and we are beginning to ask why. If there is one work more than another that is our work as women and mothers in this Canada of ours, it is to give our attention to the child, and to see what is the cause of the children not being physically fit, and to demand that the conditions which tend to make our children unfit are removed or corrected.

Dr. MacMurchy has given us just exactly what we require to complete the statements that were thrown out by Mrs. Shortt, and she has said that the support of public opinion is the one thing necessary in order that things can be done. There is no other one factor in this country that can do as much to mould public opinion as the Women's Institutes. Just think what a wonderful organization it is that we belong to, with its branches all over the Province, with 30,000 members and so organized that if a member in the remotest branch has an idea that is worth while and brings it to her meeting, and they think it is worth while, it is passed on to the District Meeting, then to the Department, and it is brought up on the programme at the Conventions and so agitated upon that finally you get what you require.

I have been impressed as I have gone through the country with the interest that the men take in any kind of live stock they are raising; they get any literature available upon that subject. Why should not we as mothers write to the Department and try to get all the literature that will tell us of the best things to do for our children? There is no other one source of waste in our country half as great as the waste from unnecessary illnesses from preventable diseases—a waste of time, money, efficiency and life itself. And the Government has published reports of preventable diseases which have been prepared by the best authorities on the subject, and they are sent free from the Provincial Health Department to anyone asking for them.

It is not so much the members of the Women's Institutes who do not avail themselves of this literature, as it is the women who have not yet joined the Institute. There are some who are so busy looking after their small children,

that they have not the time to come to the Institute meeting. I think we could easily work out a plan whereby arrangements could be made so that mothers could bring their children to the meetings and have them looked after. But there are other women who require these reports, and when anyone of you is calling upon a non-member, you might just suggest that this literature is available, or as you look into your knitting bag find you have some of that literature with you and leave it with her. If we were really on our job as Institute members we would do that sort of thing, until we would have every woman in the community interested in our work, and they would soon realize that they could not afford not to be a member of our Institute.

Mr. Putnam gave us some statistics regarding public schools. There is nothing in the schools that we as members of the Institute should not know about, and I do think that where there is an active branch of the Women's Institute, one can tell it by looking at the school. How familiar we all are with the old-fashioned desk big enough for a man to sit in, and the shoulders of the child have to be all hunched up to reach it, and in after life that child will have one shoulder higher than another and probably have a deformity of the pelvis. I do think we ought to concern ourselves a little bit more with the seating and lighting of the schools. I was brought up in a rural district, and I do not think we have a necessary convenience in the city that we could not have in the country, if we set about having it. You remember the late Sir John A. Macdonald used to say that "He always gave the farmers everything they asked for," because, he added with a shrug, "they never ask for anything"; but those days are over. We are going to ask for a great deal, and one thing we are going to ask for is Medical Inspection in every rural school. There is no place like the country for the children, and yet you know statistics show us to-day that the country child is no further developed either physically or mentally than the city child, and that is accounted for by the fact that in the city the children receive so much more scientific supervision. In the home, children are not competing with other children and we do not recognize their little defects, so we need medical inspection in our schools to detect these defects.

There are a great many problems that the Branch Institutes should take up, and of course the work of the Branch Institute differs according to the locality. The Institute should be the nucleus where all the problems that are not looked after by the men may be looked after by the women. We have our councils, and the men look after the roads and a great many things, but there are other things that are of great value to the community that they have not the time or training to look after, and the women and Women's Institutes should look after all these things.

I was asked only to lead in the discussion, and I believe there are several here who have given a little thought upon this subject and we would be glad to hear from them now.

A DELEGATE: I think we all agree that the key to success in any undertaking is getting the individual members to feel their responsibilities, and any hints which we can get along this line of making the women feel their sense of responsibility, we would be glad to hear. Most of us shrink and try to avoid any responsibility. We have the greatest difficulty in getting officers to fill the position which has a great deal of responsibility in connection with it.

In our Institute, with a membership of 40 or 50, we divided up into groups, and each group was responsible for a certain part of the work; we had six groups

of about eight. The first year it was a matter of raising funds to carry on our Red Cross work. We had to raise \$1,000 during the year, and each group had to be responsible for their own particular part of it. It took a great deal of responsibility off the president, and each group made good.

DR. PATTERSON: It is most important that every member should have definite work to do in her Branch. I think we are all agreed it is absolutely everyone's duty to do everything in their power to help win this war. I think we are all doing it, and we have got to go on doing it. Another line of work that Branch Institutes might take up is normal, healthy recreation. Some place should be provided as a recreational centre in the locality. The thing that impressed itself on me this summer in visiting some of the Institutes was the possibilities in the shut-up agricultural fair grounds, open for "Fair Day" and shut up during the balance of the year. How easy it would be if the Women's Institutes took hold of that, and got permission from the Board of Directors for the use of the agricultural fair grounds as a place for recreation. There is plenty of room for basket-ball, baseball and other sports, and in the winter time there might be a skating rink, and you could have a recreational centre right in your own community. There is a hunger for wholesome recreation in so many country communities, and there is nothing that is more educational. In connection with that you could have debating clubs, and I would like to see a revival of the old-fashioned singing school.

A DELEGATE: I would like to say that I believe the most important thing in the carrying on of the Women's Institutes or any other organization is the passing around of the offices. In my short experience with women's societies, I have found that it is the public opinion that there are only two or three women who would be expected to fit the office. I think that is a great mistake, and it is a mistake for one woman to hold the office of president or secretary for two, three or five years. I think the executive should change very frequently. If a woman was president last year, she is very much more interested this year than she would be if she had not held that office.

THE CHAIRMAN: What would you call a good meeting, conducted in a business-like manner?

DR. PATTERSON: The agenda should be prepared beforehand, certainly, by the secretary in consultation with the other officers of the Institute, and if the members of the Institute are doing their part as individuals they will try and give all the suggestions that they possibly can, and will send the secretary word of something they are willing to do or of something they know of. See what a treat I gave you to-day by hailing Dr. MacMurchy on the street. Give the secretary that information, and then let the programme be made out beforehand. Place the agenda of the meeting in the hands of your President. The Secretary has her minute book with the minutes written out, and reads them in a voice that can be heard. Any business that comes before the meeting should be placed before the meeting by the President, and if it is not understood should be explained; and when it is understood, then let it be voted upon. Things that are done in this way cannot cause any trouble later on. Get through your business as quickly as possible, and have plenty of time for the regular work that you have on hand. Try to make the work worth while, so that those who have come will go away feeling it is worth while for them to have been there.

EVENING SESSION.

Mrs. H. W. DUMMERT, Carleton Place, presiding.

REPORTS OF CARLETON PLACE INSTITUTE AND BONNECHERE VALLEY.

CARLETON PLACE Women's Institute has been very successful during the past year. As the war goes on more calls come and more money is needed by the different societies, but the Institute members are ever ready to do their bit. One hundred and fifty-five dollars was sent to England to purchase and equip a portable hut for gassed soldiers. Fifty dollars went to the Y. M. C. A.; \$228 was sent to Prisoners of War Fund; \$91 to Red Cross, a box of comforts sent to the 73rd Highlanders; 106 Christmas stockings valued at \$1.35 each sent to boys; 93 letters were written; 530 pairs of socks, 99 shirts, etc., sent to Front.

BONNECHERE VALLEY divides its work under four headings: Social, Educative, War Time and Financial.

Social Work: Institute has done much to bring neighbors together. Discussions on housekeeping problems are profitable to all. One meeting a year is given over to the girls entirely. A sick committee visits ailing members and reports work at meetings. Flowers are sent to sick and "shut-ins." They help the Children's Shelter at Renfrew. One opening meeting a year prevents society getting into a rut.

Educative: The members adhere to parliamentary rules, stand to make motions, speakers address the Chair, etc. They believe they should try to hand down to the girls a legacy worth while *re* business management.

Our Institute has done a great deal to encourage the boys and girls of our schools. The last three years, we have offered a gold medal to the winner in an oratorical contest at the rural school fair. Some recognition is also given to second and third prize winners (silver medal, wrist watch, fob, pins, etc.). Sometimes, topic was chosen by Institute, and sometimes the children picked on their own topic.

There was a shield given to school rendering best the song prescribed. Also a prize for cooking, judging, and for best collection of vegetables from schools.

As a result of Miss Campbell's address last June, there has been a wakening up in our members *re* our duty to schools along other lines than we had been doing. Asked how many ever visited school, only two or three hands showed. After her address, there was a special meeting held of officers and directors to talk over possible improvements in our schools. We have now started reforms on sanitation in school, public drinking cups, and visiting. A resolution was passed to the effect that our Institute was willing to co-operate with the trustees in anything by way of improvements they thought advisable. Parents' neglect to visit schools must cause teachers to imagine that parents are indifferent to their children's welfare at school. We have a plan now that two women visit school each month, and report at next meeting. Most teachers like an interest taken in their school.

WAR TIME WORK. During the winter months, we do knitting and sewing for soldiers. This is suspended during the summer, as we are a rural Institute and feel we can best serve our country by doing our bit on the farm. We raked and forked hay, donned overalls, and worked in the garden. When summer work is over we resume Red Cross work, and our methods are so similar

to the previous reports, that I will not burden you with them in detail, just to say that we gave \$105 to Red Cross; \$60 to Prisoners of War Fund during the past year; \$5 to Y. M. C. A. at front; \$10 for Christmas stockings.

One member each month writes letters to prisoners who have no known relative to do so. This may seem a little thing to us but not to the boys at the front.

PATRIOTIC WORK.

DR. MARGARET PATTERSON, TORONTO.

I have been asked to say a few words on Patriotic Work. I think we are all engaged in patriotic work of some kind, but I wonder if we as Institute members have realized just the force that we as an Institute should be in patriotic work. I doubt if there is any other agency that has as great or as wide a field of influence as this organization, when we consider what women's organizations have accomplished for mankind. Beginning with that first woman's organization of which we have any record, the few Jewish women, mentioned in the Scriptures, who banded themselves together to give spiced wine to those who were crucified in order to dull the pain; so we find down through the centuries that the object of women's organizations has been to make things pleasanter or easier for someone, and better conditions generally. It is not so very long ago that a woman's organization, or club, was made the butt of many jokes, and the woman's club rarely had the approval of the municipality or community in which it existed. Yet it is a fact that most of the laws *re* sanitation, hours of rest, work, etc., were first talked of in these clubs. When so much has been accomplished by women's organizations, laboring under such handicaps, there is absolutely no limit to what we might expect of an organization like the Women's Institute, an organization with Government approval, practically part of the Government, Dominion wide, and never had an organization such opportunities to wield its powers of healing and saving and comforting as we have just now; we have done wonderful things, but we are only beginning.

We were told this afternoon that the value of having the women organized was realized very quickly when the Red Cross appeal was made. It was possible to reach the women throughout the whole country, to place before them instructions and to let them know just the things that were needed. And they responded nobly. They have responded regularly ever since. They have been doing a great deal, but they have not done nearly enough. We have to go on doing the things we have done in the past, and we have to do a great many more. Some say we have not yet given to the place where it hurts, but when we get the real spirit of giving, it does not hurt. When we think what has been given for us, it surely should not be a hardship to give, but it should hurt a great deal more to withhold, or keep back anything that might help those who are giving everything, even life itself for us. We should feel our responsibility to do our part, so that in no way shall this organization fall short of its possibilities.

One channel for our work is the Red Cross, and it has meant so much to us to have that channel through which we could work, and know that our work was going where it was most needed, and to know that our work is helping to relieve the suffering. The Red Cross Motor Ambulances with their quick and comfortable methods of transportation often are the means of saving a limb, or even life

itself, and the Red Cross supplementing the bare necessities given by the Government mean so much to the sick or wounded man. Many of the returned men, both officers and privates, have said that they could not have lived had it not been for the help of the Red Cross.

We can scarcely realize what the regimental bath houses that the Red Cross and Y. M. C. A. have been instrumental in establishing mean to the men. One returned man said to me, "I know what heaven is like, and I didn't learn it from a preacher, either." He had been in the trenches in the Ypres salient for a long time, and when he came out, was all covered with mud; but he said, "There comes a time when we rub the mud on because it is a relief from that incessant crawling and biting which makes life a hell in the trenches. Just a few miles back of these trenches we got to a bath house, and we were given three minutes to have a warm shower bath. In the first little room, we stripped off all our clothes which were carried away to be cleaned, and then we had three minutes for a warm shower bath and three minutes in another room to dry." And he said, "I know just what heaven feels like." In these bath houses the men's feet are examined, and they are given proper socks, as far as it is possible for the Red Cross to supply them. In the reports we have heard from the branches, the expression has been used several times, "just knitting." I do not believe there is anything more important than "just knitting." We know we have a great many German agencies actively at work right here in Ontario. You never find they take much trouble to stop our pleasant socials or anything of that kind, that so many call patriotic work, but they always aim at our knitting needles. It is always some report against the sock. If they could stop the women knitting, they would be doing a very great deal for Germany and the Kaiser. Go on with the knitting. It means a very great deal, and don't go back on the boys because some lie is circulated that the socks are being sold; these stories are all of German origin. We have been working for more than three years sending supplies, but one has to look at the casualty lists to realize that the need is a thousand times greater to-day than when that first appeal was sent out. Supplies of every kind are needed.

There are so many ways in which we can use our influence, not only by these supplies, but let us show that our first interest is to conserve everything, do everything to help win this war that we are behind, with our work, our love and our life for those that have gone. Unless we do this, final victory will be delayed, and we will be shirkers.

The men who come home are terribly disappointed. They have given up everything and have gone out to defend ideals, and they remember only the ideals, and when they come home what do they find? I am going to try to repeat what one of the returned men said to me in the hospital. He was an educated man, a university graduate. He had his own home, a wife, and two children, but he felt the call of his country. He loved his country, his wife and family enough to go and defend them, and he told some of the terrible things they had been through. He made me see war as I never saw it before. He described one of the attacks of the Somme; they had been in the trenches from Sunday night until Wednesday night. The barrage of fire was so terrible that the ground shook like jelly, and when it ceased, they went over. They were not strong enough to take the enemy trenches; they had to come back, and in about 24 hours' time they were relieved by another company. They had been in the trenches four days and four nights with only army biscuits and a bottle of water. They marched

back for some distance out of range of the guns; then they lay down on the ground in the pouring rain, too tired to go on. And they slept. They had only been asleep a few hours when they were wakened and told to go back; there were no more supports to call on; the enemy were attacking and they must go back. He stopped for a moment and looked at me. "Did we feel like revolting? Did we think it unjust? No, we did not; it was war; we had gone there to do our bit, and we were going to do it. We never thought of revolting." Then his expression absolutely changed, and he said, "I will tell you when we did feel it was unjust, that was when we came home. Then we realized why there were no reinforcements to come up and relieve us; it was because of 100,000 men who should have been there had stayed home to make money, and the first time I felt like revolting was when I came back to my own town and saw my neighbor, a man who thought of nothing but himself, had moved into a better house and was driving an automobile, while my wife has had to move into a cheaper district, and my children's shoes are in holes." He stopped. "I do not know why I have told you this, but I think you understand."

Now, I think it is the business of every one of us to understand. Our work as a woman's organization is not done when we have sent Red Cross supplies overseas. We have the greater task of purging the heart of our nation of greed and narrow and selfish materialism, of preserving and living up to the ideals for which our men have fought and died. It is the women who give a nation its vision, and a nation is great or small as it has a vision, a purpose, and a will to serve. It is as true of a nation as an individual that it profiteth little to gain material wealth if it loses its soul. Let us be fair to the man who has made the sacrifice of leaving all, and going out to face the horrors of war, and not only make such provision for those who return maimed, but for all those dependent upon them as shall promote a happy feeling of brotherhood in our nation. Let us make at least enough sacrifice, that we shall be able to understand the spirit of sacrifice, and of service of our men, and when they return receive them in a way that will preserve this spirit and make this old world a better place to live in. The nation that has the true spirit of service is the nation that grows. These days of struggle have loosened the generous energies of the people to great endeavors. We women can preserve that spirit. These ideals may be obtained by unselfishly performing the little duties that come to us from day to day. By sharing what we have with those who have lost their all. In being thoughtful and not blindly adopting fashions, many of them designed to help the enemy, viz., the fashion so popular just now for women to wear a long woollen scarf thrown over the shoulders. It is quite unnecessary and the wool is so much needed for socks.

I think you have read some letters by Pte. Firstbrook, of Toronto. He was taken a prisoner of war, but was so badly wounded that he was exchanged. He says the German women do not count their work sacrifice: it is their life and thought. The war is first and winning the war is first, and you could not induce a German woman to do anything that would use up any of the supplies not only that the men need, but which can be used for the war. It is only because we do not realize the serious condition of the war that we are not doing these things. The spirit of the British women and the Canadians is quite equal in loyalty and sacrifice to that of the German women, and we have only to unite on this and then our force will be irresistible, and victory will come very much sooner than if we are indifferent. The sacrifice becomes greater as time goes on, and it is only by absolutely everyone doing their bit that victory will come speedily.

I think there are a great many of us who would be willing to take a man's place in any line that is necessary, and there are a great many things we can do if the men only give us places in which to work, and we can, by showing our united determination to let nothing, absolutely nothing, interfere with attaining our object, win that victory for which we are all longing.

- We must not slacken in the regular work of knitting and making pyjamas and all that work. We must conserve food and yarn, and we must show that we realize and appreciate the position of the men who have gone, and we must not forget that we as a country made a very solemn pledge to these men that if they would go, we would see that their loved ones did not suffer.

There has been something done just recently to better conditions, a little change in pensions, but I do not think half enough has been done yet. It is a far harder sacrifice for a woman with little children to bring up in letting her husband go, than it is for her husband. Are we befriending her, and giving her all the moral support that we can? The man went to fight for us. We are all responsible for caring for those he left behind. Surely, to an organization such as the Women's Institute, this should be an easy task. "In union there is strength," and are we not united for "Home and Country?"

Mr. Yewington then rendered a delightful musical selection.

RUPERT BROOKE'S WAR SONNETS.

DR. HELEN MACMURCHY, TORONTO.

It is a privilege to listen to two such addresses as we have just heard from Dr. Margaret Patterson and from Mrs. Reid. I agree with everything in these addresses most heartily, and one can feel the assent of the audience. The Women's Institute is a very easy audience to speak to, and it is really the audience, very largely, that makes the speech on any occasion. There are some audiences one can say anything to; there are other audiences before whom one feels it almost impossible to say anything at all. It is not so much that you feel opposition from certain audiences; it is that you do not feel anything at all. You are in a void, and you do not feel able to express yourself as you would like. I feel so at home with this audience and with the speakers to whom I have listened, both of whom are great friends of mine, that I feel inclined to make a suggestion. I was going to ask Mrs. Reid to think it over about the tobacco. I do like to see men enjoying themselves with a pipe or cigarette. I agree with Mrs. Reid from the medical point of view in regard to the younger boys. We do not know just why, but we do know for certain that tobacco has a deleterious effect on the action of the heart. I have listened to many a heart where the boy under 20 has ruined his chance for being a healthy man, but I must say that I am not at all sure that it is not a good thing for many men, especially if they like it; and if they think it is good for them it will certainly do them a certain amount of good. I understand that my great-grandmother indulged in smoking in the Highlands of Scotland where she came from, and I understand the men of the family were glad she indulged in this way. I do not think from what I heard about her activity of heart, mind and body and her leadership of the entire family that tobacco did her any harm. The great argument is that it does seem to be

needed by the men at the front. You have saved up and have helped to send cigarettes to the boys at the front. (Applause.) They do seem to be a comfort to them.

I had the pleasure of being present in Ingersoll where a number of addresses were given on the food question. After the meeting, Dr. Rogers rose to move a vote of thanks, and he told us how this matter of conserving food appeared to him. It was just like this: "Suppose I happened to be on my morning rounds and was late for dinner, and we had a nice piece of beefsteak, enough for the whole family, but instead of saving my dinner for me, the other members of the family divided it up among themselves. Now, I think that is just about the way it is with the soldiers. We have their dinner here in Canada. Shall we eat it or save it and send it over to them?"

I have taken comfort during the time of the war, outside of the great issues, outside of the entire satisfaction that one has that, no matter what has befallen us, we are trying to do what is right, outside of that—and outside of the glorious pride that we feel in the character of the men and women of our race—I have taken great comfort in the expression given to one's feelings in poetry, and I think it might be possible in the few minutes I have to speak to you to refer to some of the poets who have given us great comfort in expressing our feelings about things.

In the first place it will not be news to the audience that a new school of poetry had arisen before the war. In the reign of George V there had already been published a number of volumes of verse that will not be allowed to die. But that is not the only thing. The war seems to have given a great impetus to poetic genius. That has happened often before in the world's history.

The greatest of these is Rupert Brooke, whose great career is now closed. He died in the *Ægean*. He was in that ill-fated expedition to Antwerp. After that he was sent to the East and to the Grecian seas, and it was from an attack of fever he died and was buried in Scyros. He had written something before the war. He paid a visit to America, but when the war broke out it seems as if his genius suddenly rose to a great height.

There are five sonnets I would like to repeat. The first refers to the things we enjoyed and trusted in in life:—

When colour goes home into the eyes,
And lights that shine are shut again
With dancing girls and sweet birds' cries
Behind the gateways of the brain;
And that no-place which gave them birth, shall close
The rainbow and the rose.

Still may Time hold some golden space
Where I'll unpack that scented store
Of song and flower and sky and face,
And count, and touch, and turn them o'er,
Musing upon them; as a mother who
Has watched her children all the rich day through,
Sits quiet-handed, in the fading light,
When children sleep, ere night.

One fancies when reading that great sonnet, that he was just thinking over things before he put on his uniform and went into His Majesty's forces. Life had taken on a great seriousness. But it is his four sonnets on the war that display the most remarkable genius. Of the last one which I shall repeat, the literary critic of the *Times* says that there never has been such a sonnet since

the lament was written for Sydney, and that was written by Shakespeare. This second sonnet is entitled "Peace."

Now, God be thanked Who has matched us with His hour,
And caught our youth, and wakened us from sleeping,
With hand made sure, clear eye, and sharpened power,
To turn, as swimmers into cleanness leaping,
Glad from a world grown old and cold and weary,
Leave the sick hearts that honour could not move,
And half-men, and their dirty songs and dreary,
And all the little emptiness of love.

Oh! we, who have known shame, we have found release there,
Where there's no ill, no grief, but sleep has mending,
Naught broken save this body, lost but breath;
Nothing to shake the laughing heart's long peace there
But only agony, and that has ending;
And the worst friend and enemy is but Death.

The next sonnet I think is perhaps the finest. This one refers to the glory of those who have died.

Blow out, you bugles, over the rich Dead!
There's none of these so lonely and poor of old,
But, dying, has made us rarer gifts than gold.
These laid the world away; poured out the red
Sweet wine of youth; gave up the years to be
Of work and joy, and that unhop'd serene,
That men call age; and those who would have been,
Their sons, they gave, their immortality.

Blow, bugles, blow! They brought us, for our dearth,
Holiness, lacked so long, and Love and Pain.
Honour has come back, as a king, to earth,
And paid his subjects with a royal wage;
And Nobleness walks in our ways again;
And we have come into our heritage.

Then comes the last sonnet which in the opinion of the critic of the *Times* is the greatest of all. It is called "The Dead."

These hearts were woven of human joys and cares,
Washed marvellously with sorrow, swift to mirth.
The years had given them kindness. Dawn was theirs,
And sunset, and the colours of the earth.
These had seen movement, and heard music; known
Slumber and waking; loved; gone proudly friended;
Felt the quick stir of wonder; sat alone;
Touched flowers and furs and cheeks. All this is ended.

There are waters blown by changing winds to laughter
And lit by the rich skies, all day. And after,
Frost, with a gesture, stays the waves that dance
And wandering loveliness. He leaves a white
Unbroken glory, a gathered radiance,
A width, a shining peace, under the night.

One of the greatest functions of poetry is to express our feelings for us, and many a day since these sonnets were written and Rupert Brooke died, many a person has repeated them and found comfort in the comprehension of the situation we are in. The first expression of that is what Kipling says in "For All We Have and Are." There is a great deal of difference of opinion as to whether

Kipling had not fallen below his standard. I have never changed my mind about my friends, and having admired Kipling, I am going on admiring him. I notice now that the prevailing opinion in regard to this poem is the other way. It is a great poem:—

For all we have and are,
For all our children's fate,
Stand up and meet the war,
The Hun is at the gate.

I shall not repeat the whole poem.

There was a very high note struck also in "The Vigil," by Henry Newbolt, and that appeared in the *Times* on the morning, I think, of the 6th of August; at all events it was within twenty-four hours after the declaration of war, and it is a great example of how the poet throws off, as it were, at white heat the thoughts of the nation.

Then there have been many briefer poems, each one of great value. The father of the Grenfells, who are splendid poets, especially Julian Grenfell, wrote a poem that is really very fine about the death of his son. His words might have applied to many a young man in Canada. It just looked as if his life were all before him, and then it was all changed because there was a greater call.

WAR SERVICE BY WOMEN.

BY DR. JAS. W. ROBERTSON, OTTAWA.

I am very glad to speak to you for a short time about two aspects of women's work now needing special diligence, intelligence and determination. We are all gratified by the extent and character of the volunteer and voluntary work that men and women have done throughout Canada in connection with war service. Perhaps the work of the Red Cross Society is the most notable example of that, both at home and abroad. The work which women have done for the comfort, welfare, and sometimes for the saving of life of the men overseas, has been a revelation of their capacity. I have seen evidences of it in France behind the lines, and in the hospitals and convalescent homes overseas. The women themselves by their work have established new friendships between people who were neighbors, in the proximity of their homes, but who were strangers from want of community and harmony of social interests before the war—new friendships, new interests, new understandings. It is always so when people with self-forgetting devotion take up any great cause. Even religion has separated us in Canada more than it has united us in the hope of a common salvation through common service in justice, faith, and good-will. I daresay there are people even in the church to which I have the privilege of belonging who suppose that many others are heading for Halifax just because they are seeking to head towards heaven in a church of a different name. What a fetish has been made of the different names of groups of associates seeking personal solace and advantage while the sick and wounded in life's warfare have been passed by on the other side! On the other hand, the Red Cross has helped us to be good neighbors.

SAVING FOOD IS WAR SERVICE.

Now a new kind of war service claims your help, the help of women particularly, the plain matter of saving food. What is the situation regarding food control, and why does not the Food Controller bring the prices down? The gravity of the situation is from this cause: there is not enough food on our side; and if we all eat and waste this year, and next year, just as we used to eat and waste, then there will be privation among our allies—privation which may mean starvation for women and children and the weakening of our position in the war. That is the gravity of the food control situation.

Why did we not know about that sooner? Well, the men at the heart of things have known of it, but the people would not hear or heed because the abundance all about us was so great. I sometimes think, with my body in Ottawa and my mind behind the lines at the front—if they hear not Moses and the Prophets (men of intelligence, vision and responsibility) neither would they be persuaded although one of our soldiers rose from the dead and said, "You folks at home are putting in peril all that I died for."

The big harvest of 1915 hid the danger. It was such a big harvest, not only in Canada but in other countries that there was plenty of food. But by the end of 1916 the real situation began to be understood.

CAUSES OF THE FOOD SHORTAGE.

The causes of the world-wide shortage are cumulative. In 1916 there was a general shortage in the northern hemisphere of the five big cereal crops, wheat, corn, rye, barley and oats. Of these crops, 1,968,000,000 bushels less were produced in 1916 than in 1915, or about two and a half times the total quantity of these crops raised annually in Canada. Even in normal peace times this shortage would have been serious, but its seriousness is greatly accentuated by the war. The shortage was due to several causes. One of these was the weather, over which, of course, there was no human control. The chief cause, however, was the withdrawal of labor from farm production. About 24,000,000 men are at present under arms, and it has been estimated that since the beginning of the war about 40,000,000 have been in active war service. Probably 60 per cent. of these came from farms. A great part of the French army was recruited from rural districts, the skilled mechanics of the cities being retained for munitions making. The same is true of Italy and her army. Coming nearer home, we have an enormous withdrawal, comparatively speaking, from the farms of Western Canada, while in Eastern Canada, besides the enlistment in large numbers from among the farm workers, there has been a tremendous flow of men toward the manufacturing centres, attracted by the high wages paid for munitions making. Altogether a conservative estimate would place the total number of men withdrawn from agriculture for fighting and munition making in the belligerent countries at some 30,000,000.

The scarcity of food has been accentuated to a considerable extent by losses due to destruction by submarines. For a long time 50 per cent. of the cargo capacity of most ships crossing the Atlantic was reserved for foodstuffs. Many of these ships have been sunk, as have also doubtless many others which were loaded solely with food products. Of the food supplies which were still available after these great losses, it cannot be said that they had been husbanded to the best advantage. The temporary prosperity of munition workers, many of whom are

receiving higher wages than ever before, has resulted in extravagant buying and living. Taking all these factors into consideration it is no exaggeration to say that the world at present faces a food situation that is nothing short of appalling.

GREATER PRODUCTION FOR 1918.

All this has occurred in the face of a campaign for greater production. But we must not now slacken our efforts. The logical sequence to the work that has been done for greater production is to follow it by a further campaign for still greater production. We should use all the experience we have thus far gained in planning and carrying forward a campaign for larger acreages and higher yields in 1918 and the years that are to follow. We can better meet the needs of the Allies by the production of food than by any other service. The farmers of North America are in a better position than those of any other wheat producing section of the globe to contribute to the food needs of the armies in Europe. A given tonnage of shipping can carry over twice as much grain from America as from Argentina and three times as much as from Australia or New Zealand. It is vital at this juncture and will continue vital until the end of the war that shipping be employed on the routes where it can be used to greatest advantage. One of the most effective ways to conserve shipping is to provide as large a proportion as possible of the food requirements of the Allies from North America. The world's reserves of food, to carry us from harvest to harvest, are so reduced that a failure next year would mean starvation for millions. We are running as close to danger as that.

The personal effort of individuals is the only way whereby the supply of food can be increased. Under modern conditions one can not expect the earth to receive a miraculous shower of manna; a Niagara of wheat to fill the empty granaries and elevators is not to be expected; food comes from single plants produced by nature in co-operation with the intelligent labor of individuals. All over Canada farmers and gardeners have done their best to increase the quantity of food which is available. It is now necessary to be just as diligent in conserving what has been produced, in preventing all waste, and in shifting our own consumption from flour, beef and bacon which the armies and civilian populations need from us, to other foods which cannot be sent overseas.

WHAT ARE THE PROSPECTS?

You may ask, is there not a good chance for the situation to be remedied by a big crop in 1918? We may hope for but we cannot depend on a 1915 crop over again. Bear in mind the millions of men who used to work on the land and are now off the job. In consequence you have the land becoming dirty with weeds from want of labor. I have seen how Manitoba suffered this year for want of labor. Some fields gave half a crop. All over the country the want of labor is letting the weeds take possession. The weeds never let up—in season or out of season. That does not promise well for next year. Fertilizers are scarce and cannot be got.

As has already been stated, what the armies and civilian population of Great Britain and the Allies require most from Canada are flour, beef and bacon. They also require and take a very large quantity of cheese and some other foodstuffs. Every housekeeper can become an effective volunteer in the great army of food controllers. The home consumption of these articles can be very much reduced

by the prevention of all waste, by the reduction of the quantities of them consumed in our homes and by the substitution of other wholesome and in some cases comparatively cheap foods in their places.

OATMEAL AND MILK.

Let us shift the consumption in our homes to meet the needs of the armies and allies. Let us eat corn bread instead of white bread. It costs more at present, but prices will come down, and it is not a question of saving money; it is a question of saving food for the armies and allies. Let us eat more oat bread and oatmeal porridge. They are excellent substitutes for other things we have been accustomed to eat. It will not be news to many housekeepers that oatmeal is a first-rate breakfast dish. It may be news and good news in these times of high prices that for growing children and working men and women, in terms of nourishment and energy produced, one pound of oatmeal is a practicable substitute for two dozen eggs; one pound of oatmeal may be used to replace one and three-quarter pounds of beef; one pound of cheese has a nourishing value equal to two pounds of beef; four pounds of potatoes make a good substitute for one pound of bread, and cheese and potatoes make a well-balanced meal.

I am not going to attempt a talk on cooking of substitutes; but if the women of Canada would learn how to cook oatmeal properly the gain in health and vigor, particularly to growing children would be very great. Soaking and softening are not the same thing as cooking. They result in dishes that are unattractive and are called indigestible.

I was born in a locality where the young people were brought up on oatmeal and milk; perhaps two-thirds of their diet was oatmeal and milk. We were not poor people, either, in the usual sense of poverty or in the other sense of incompetence and ignorance. I confess, with all diffidence, that I never had to do without anything I really needed, although I have done without many things I wanted. However, that is an aside to be permitted from a Scotchman's partiality to the national dish.

And since I have turned aside for a moment, perhaps I may interest you by telling you how, as a boy, I learned to cook oatmeal. I took oatmeal and cold water and mixed them. I stirred the mess for a long time and kept on stirring it. Then I put it aside to soak. By and by I put it on the fire and kept stirring it. After I had it thoroughly cooked, I stirred it some more—and then I used it to stick paper on the ribs of my kite and the paper never came off. Please do not degrade the breakfast dish by preparing it as a paste; and please give it a chance “to jell” in the dish before it is served on the table. A second helping will then be in order.

RESULTS TO STRIVE FOR.

What may be expected as a result of the food control service by the voluntary action of the housekeepers of Canada? The saving of only one pound of flour per week in every home in Canada would result in having 50,000,000 pounds of flour a year for export more than would otherwise be the case. We can save far more than that. The food control office estimates that the saving in Canada of flour, beef and bacon will be sufficient to provide much more of these foods for a year than would be required by an army of 500,000 men. It comes down to this, in preventing waste and in shifting consumption that there must be control of single slices and single bites.

All this is war service, and because it is war service it must be done with diligence, intelligence and determination. It is not romantic or dramatic; it does not appeal to the emotions. But because it is necessary war work, it requires all the more intensity and continuity of determination on the part of those doing it.

Lately I met a friend from England on his way across Canada. He had in his pocket a letter from a young acquaintance in the army overseas. He wrote that he felt disgraced and was very much hurt. He had had to undergo some days of special fatigue duty and some other humiliation because in the garbage pail of his company, he being responsible for the care of the food, the inspector had found two potatoes and half a roll of bread.

There is no shortage of food to the men of the armies, but there is actual want among the industrial populations of our Allies. That may be what was shaking the morale of Italy. There is no question as to the bravery and fighting ability of her men. We must not permit their confidence in their allies to be shaken from any want of food for the women and children if we can do anything to provide it.

CHEAP BREAD IN BRITAIN.

Great Britain has provided cheap bread for the people in all her towns. How does she manage to do it? She buys our flour and wheat and pays the prevailing high prices; and yet in England you can buy bread at $4\frac{1}{2}$ cents a pound, while in Ottawa you cannot buy it for less than eight. Therefore, says the ever-ready critic of food control, "We are suffering from profiteering all along the line in Canada." That is not a just conclusion. It does not tally at all with the facts. England buys our wheat and has it ground in mills which she controls. She mixes the flour with 15 per cent. or 20 per cent. of rye, or corn, or barley; and then sells that diluted flour to the bakers at a price which allows them to sell bread at $4\frac{1}{2}$ cents a pound, and requires them to sell it at that price regardless of the cost to the Government. The Government subsidizes the bread industry from the public revenue as a war measure in order that the poorer people may obtain cheap bread. We also can have cheap bread if we are willing to pay for it out of our taxes. That is England's solution to prevent unnecessary unrest among the women.

FACTORS GOVERNING PRICES.

The Order-in-Council providing for the appointment of Food Controller sets forth that "It shall be within the power and it shall be the duty of the Food Controller. . . . to make regulations, when he deems it in the public interest and subject to the approval of the Governor-in-Council, governing the prices of any article of food and the storage, distribution, sale and delivery thereof."

It thus becomes part of the Food Controller's task and duty to prevent, as far as possible, anyone from exacting unfair profits in the handling of food whereby unnecessary increase of prices is caused to the consumer.

A world shortage of food and the purchase of enormous quantities of food-stuffs by the Governments of the Allied nations has brought about a great advance in prices. So long as buyers for the European governments, buying in the open markets compete with buyers for domestic consumption the prices of staple foods will be governed by what the export buyers are willing to pay. It is common knowledge that the price of wheat in certain central points in the United States and Canada has been fixed for the crop of 1917 at \$2.21 per bushel No. 1 Northern.

The United States Congress has determined that the price for the wheat of the crop of 1918 shall not be less than \$2 per bushel. Under these circumstances it is obvious that the price of bread cannot be as low as when wheat was selling around \$1 per bushel.

TO PREVENT UNFAIR PROFITS.

What the Food Controller can do is to see that no one by speculation or greed steps in and takes an unearned or unfair profit between the price fixed for wheat and the price charged to the consumer for bread. The Food Controller is making investigations and holding conferences to ascertain just how much "spread" in different areas and zones, between the price of wheat and the price of flour and bread, will give a fair return to millers, transportation companies, dealers and bakers for actual service rendered. When the amount of "necessary spread" is ascertained the price of bread can be governed and no unfair charges be permitted. Studies are also being made to discover to what extent the producer can be brought closer to the consumer. When the stage for action has been reached, and it may be arrived at in the very near future, the only way in which a further reduction in the price of bread can be accomplished would be for the Government to meet part of the cost and charge it up as a public war expenditure. That is the plan followed at present in Great Britain. I do not think that Canadians want to pay part of their bread bills through their taxes just yet.

INVESTIGATIONS IN PROGRESS.

A similar course of investigation and procedure is being followed by the Food Controller in respect to other staple foods such as fish, potatoes, fruits and milk. The meat trades will be dealt with in the same way. If the United States, with whom we are inseparably associated and allied in the war, can find a basis for the control of prices of meats, Canada can do the same.

A thorough survey of the conditions and of the possibilities has to be made for every important group of foodstuffs. When each survey is advanced far enough for decisions to be arrived at, I believe the Food Controller will not hesitate to employ all the power with which he is vested to eliminate all profiteering in foods and to prevent anyone from getting more than a fair return for actual service rendered in the journey of any foodstuff from the original producer to the consumer.

ORDER OF PROCEDURE.

I need scarcely remind you that first things must be attended to first if one is to get anywhere in public service. The first duty is to prevent waste and to shift the consumption in Canada from flour, beef and bacon to other foods; the second duty is to bring about increased production to the utmost limit of our ability; and a next duty is to prevent anyone anywhere in Canada from taking unfair toll or profit out of any transaction in the handling of food from the fields and the waters to the tables of the consumer. The patience of the public is being tried by all sorts of rumors and expectations and hopes and fears. Meanwhile the strength and ability of the Food Controller, his staff, his volunteer assistants and committees are being devoted with diligence to the problems and their solution. Expectations and hopes for drastic reduction in prices may be beyond the power of the Food Controller or anyone else. There are not only serious inconveniences, but many actual hardships from war which must be endured.

But I am fully warranted in saying that nothing that can be done **will be left** undone to prevent any interest or person from using war conditions to exploit the public through any process of profiteering for personal or company gain at the expense of the producers and consumers of necessary foods. The Food Controller is not responsible for what has happened in the past. But for the future, with the price of wheat fixed, flour controlled, bread controlled, spectacular profits will not be possible in this line; and they will not be permitted in any line of foods.

CONFIDENCE IN PEOPLE.

The Food Controller hopes to find that within two months every locality in Canada has its Food Economy Committee, and that the whole population has severally and collectively become food controllers. We pride ourselves on being a self-governing people. In this emergency, in this peril, let us each personally apply self-government by the voluntary discipline of our appetites and the exercise of every form of economy in the use of food.

I do not want to urge you to do more than you can do. I would like you to understand the situation, and leave it with you to do all you can to make sure that every bit of food that can be saved for the Allies and the armies is being saved. That is a service that only the women by voluntary co-operation can do. I hope every woman here will be an explainer of the food situation. If **she** is diffident and shy, then let her be conscripted by her **conscience into** public service as an explainer. When the other woman understands, she also becomes an explainer and a food controller.

SAVE AND BUY VICTORY BONDS.

The other aspect of war service by women to which I call your attention is the fact that everybody who has money should buy Victory Bonds and thus lend money to the Government at $5\frac{1}{2}$ per cent. interest to enable the Government to find the money to carry on the war. Every \$50 loaned to the Government helps to save the situation, and helps the Government out in this time of stress.

Just before I started on a trip through the Western Provinces from which I have just come back, I heard the Lord Chief Justice of England give an address to a company of men one Saturday afternoon. I can see his figure and hear his voice now. At one period of his talk he was holding up his hand. This is **what** I remember him as saying: "My office is **that of Lord Chief Justice of England**. We as a nation, and we as a race have struggled for justice, fought for justice and died for justice. Representing that great principle, why am I not at home fulfilling the duties of my high office? Because the Government **whom** I serve needed me in the United States and Canada." What did he tell us with the voice of authority? "Don't waste a bit of food. We are in danger of being short. Save all you can and help to save the situation. Don't buy the automobile that you do not need. It consumes petrol that the Allies need, it occupies labor needed in the essential industries, and it wastes money that the Government needs to borrow from you." That was the message of the great Lord Chief Justice—don't waste food, don't waste money, but save both of them and put them at the service of the Government and help to win the war.

When you good women go home, tell your good men of the gravity of the situation. It is necessary to save money and lend it to the Government.

THE FOOD PLEDGE AND A GRACE.

Just one word more. You know about the food pledge cards and the card in the window of every household pledged to observe conscientiously the directions of the Food Controller. Out in the country put the card in the window just the same as in the town. It is a confession to yourself and a proclamation to everybody who sees it that your household is helping to win the war. Every time I see that card I read between the lines: "As for me and my house we serve the Lord." That is the proclamation. It is a good thing to ennoble the house by having that in the window.

Another thing: I had once to write a grace for before meals. When I was Principal of Macdonald College. I could not think of allowing the students to begin a meal without some fit ceremony of commencement. The graces I hear are not artistic and they are not reverent. They are not educational. Let us get meanings into things and preserve the sanctities. Here is the best grace I know in war times for real use and real devotion. As you sit down with your body here and your mind and heart in France say: "This we do in remembrance of Thee"—in remembrance of the men who died for our liberties, in remembrance of those who endure hardships that civilization may be saved and righteousness upheld in the world. Then we won't waste the things our boys and the Allies need. I wish you success in these two kinds of service.

MORNING SESSION, NOVEMBER 8th.

MISS E. MCGEE, Chesterville, presiding.

BUSINESS METHODS IN DISTRICT WORK.

MRS. JAMIESON, Renfrew, emphasized the importance of promptness by the district secretary in sending in returns, and suggested that the secretary visit the branches if there is any difficulty. We cannot be too strict in carrying on business in parliamentary form.

MRS. REID: Sometimes we in the branches are inclined to dispute authority from headquarters, and I think although we should show individuality, it is not wise to dispute authority with those in command, because they are in a position to advise us. When we are asked as branches or district workers to do certain work or send in reports, then I think we should not dispute authority.

MR. PUTNAM: Business methods is an important question in the work of all organizations. If we in the Department followed business methods as closely as we would like to, I am afraid a great many of the branches would not get some of the favors that they now receive. May I appeal to you for a hearty, prompt, co-operation in carrying on our various features of work.

The Institute is a very democratic organization. The position of the Department is that we have certain things to offer you, speakers, literature, demonstration lecture courses, and we must have certain regulations governing this work. We cannot send you a speaker on three days' notice, and we cannot send literature to your members unless you send in the list. We lay down certain rules and regulations, and we only wish you would follow these to the best of your ability; but if an Institute does not care to fall in line with what the Department thinks are the best methods, express your opinion and we will always give consideration to your suggestions and your opinions. That is to my mind one of the reasons for the success of Institute work; we have tried not to dictate to the Institutes

as to what they shall do and what they shall not do. We are in the Department to carry out the wishes of the members of the Women's Institutes, and we want you to feel free at any time to express your views; that is the only way in which the work can be carried on successfully.

CO-OPERATION AMONG BRANCHES.

MRS. R. G. LEGGETT: At our annual meeting we have a report from each branch. We have six or seven branches in our district, and we ask three of them to present papers and the other three or four we ask for music, the next year we reverse about. We have two sessions, afternoon and evening, and the delegates have their tea with us. We usually serve it in some hall. Any questions that trouble the branches during the year are brought up for discussion.

MR. PUTNAM: Some of the districts, especially in Western Ontario, Grey County, Wentworth County and Brant, make a very profitable occasion of their annual meeting—their County Convention they call it. The officers from the different branches meet in the morning and discuss ways and means whereby they can unify the work of the district for the year, and then when the larger crowd comes for the afternoon session, they are able to announce some definite line or lines of work which they would like the Institutes to emphasize during the coming year.

MRS. MULDER of the Food Controller's office then addressed the audience on "Food Conservation." (See Report of Toronto Convention.)

The first question I have is: "Is there any way in which the Women's Institutes can help in preventing the evils of moving picture shows?"

You could, I believe, by passing resolutions and appealing to the influential men in your different localities. The Department of Agriculture is putting on a counter attraction which might help to a certain extent in replacing the undesirable pictures in many of the theatres. Arrangements have been made to place a motion picture machine at the disposal of each District Representative in the Province. Many of the films have been prepared, and while this new feature of entertainment and instruction will not be in full operation to serve the whole Province this winter, on account of the large number of films required, we expect the Women's Institutes and Farmers' Clubs will receive some service this season by having the moving picture apparatus and films circulated through your respective localities. Instructive films bearing upon agriculture have been secured and general educational films outside of the Province of agriculture will also be provided. We have had taken a few films of Women's Institute work. Apply to your District Representative for an exhibit of these films.

Is it wise for an Institute to sell tickets on a quilt to raise funds? Is not that just a polite way of saying they had a lottery, and are lotteries legal in Canada?

MRS. SHORTT: It is illegal without the permission of the Chief Executive of the locality or municipality. If anyone wants to have a raffle or lottery, according to the law of Canada, they must get permission from the Mayor or Chief Executive in that locality, and that has been done in a great many cases since the war.

MRS. FOWLER: I sometimes think it is not wise to urge the formation of Institutes on account of the war and the numerous Red Cross and other patriotic societies throughout the country. All we can do is to wait and be ready before they disband at the conclusion of the war.

REPORT OF THE COMMITTEE ON RESOLUTIONS.

Mrs. R. V. FOWLER, Perth: Your Committee on Resolutions beg to submit the following:—

1. That the thanks of the Eastern Convention of the Women's Institutes be tendered the management of the Y. M. C. A. for the use of their comfortable hall for the different sessions.

2. That the thanks of the Convention be sent to His Worship the Mayor and City Council for their hospitality; to the President and Local Council of Women, to the Rev. A. W. MacKay, Miss Wilson, Miss Watters, Mr. Geo. Newington and all who have helped make our Convention a success.

3. That a committee from each branch of the Women's Institutes in Eastern Ontario visit the schools in their respective districts with a view to improving conditions wherever needed.

4. That the Women's Institute of Eastern Ontario ask the Department of Agriculture to place a monthly copy of the *Agricultural Gazette* in the hands of the secretary of each branch for the use of the members.

5. That each district be assessed 50 cents this year for the general fund to defray the musical expenses of the Convention.

I have pleasure in moving the adoption of this report, but before it is seconded I would like to state that a resolution was sent in from Lansdowne concerning the discontinuance of the use of all grain or other foods in the manufacture of liquor. That was answered this morning, and I saw in the paper the other day an Order-in-Council providing for the discontinuance of the use of grains, etc., in the manufacture of liquor.

The report was seconded by Mrs. Wilson and carried unanimously.

THE CHAIRMAN: I have the report of the Nominating Committee which I have pleasure in presenting to you.

REPORT OF NOMINATING COMMITTEE.

The Nominating Committee composed of Mrs. H. W. Dummert, Carleton Place; Miss Mary E. Pearson, Merrickville; Miss E. McGee, Chesterville, presented the following report which was adopted:—

Provincial Committee: Mrs. JAS. REID, R.R. No. 2, Renfrew; Miss MARY E. PEARSON, Merrickville; Mrs. J. P. McNAUGHTON, Maxville.

Convention Committee: Members of the Provincial Committee, and Mrs. GEO. CLARK, Manotick; Mrs. R. H. GRANT, R.R. No. 2, Stittsville; Mrs. R. V. FOWLER, Perth; Mrs. H. W. DUMMERT, Carleton Place.

LUNCHEON.

At the conclusion of the morning session, the delegates adjourned to the Russell House where a delightful repast was tendered them by the Mayor and Civic Officials of Ottawa.

At the conclusion of the luncheon, Mrs. Adam Shortt, acting as toast-mistress, proposed the toast to the King, which was responded to by the members singing "God Save the King."

MRS. R. V. FOWLER, Perth, in proposing a toast to the Hosts and Hostesses, commented on the fact that during the national stress of war work, the women of the city and country had been brought closer together than in any previous years. The delegates to the Eastern Convention were fortunate in holding their annual meeting in the beautiful Capital of the Dominion where the city authorities had always shown extreme kindness and hospitality.

Before drinking the toast, the Chairman asked Mr. George A. Putnam, Superintendent of Women's Institutes and representing the Department of Agriculture at Toronto, to add a few words.

He said: There was no question at all as to the wisdom of continuing the Annual Convention in Eastern Ontario after we had once tried the experiment and after we had received such kindly treatment by the officials of the city and women's organizations of Ottawa. We appreciate this very much, and since the first convention all we have had to do is simply throw out a few suggestions as to what we thought would be of value and interest to the delegates and both the women's organizations and the officials of the City of Ottawa were ready and willing to support us.

The Women's Institutes are somewhat different from other women's organizations, in that they are assisted by grants and in other ways by the Provincial Government. The success which they have attained is due in no small measure to the fact that they are educational and community improvement organizations for all women who wish to join. The betterment of home conditions and living is their foundation. The Government is justified in spending money in educating women and girls in their responsibilities just as much as they are in educating the youth of the land. While the Government support is very small, very small indeed compared to the support which the Institutes receive in other Provinces, I am not sure but that the smaller grant is a blessing for the reason that it requires a little greater effort on the part of the members to secure money for their many worthy activities. Women, whether in private life, in organizations or in public positions are always wanting money—always calling for money, and usually deserving of it; and if they want it and no person gives it to them, they never fail except in domestic life, to find a means by which they can secure it. The variety of commendable ways in which the Women's Institutes have secured funds is one of the great stimulants in the work.

Allow me to say, Madam Chairman, that the Women's Institutes do appreciate coming to the city and meeting each other and the city women—women with a common interest in these days of stress. They are anxious in the Institutes and we are anxious in the Department to see that the women of the rural districts get some of the good things which the women of the cities and larger towns have enjoyed for so many years, and which have been one of the reasons for the journeying of the women and girls from the rural districts to the larger centres of population. We do not want all the entertainments and social and educational advantages which you have in the city—we are better without some of the moving picture shows, better without some of the attractions which are to be had in the city, but we believe that the women of the Institutes are going to secure what they are working for, healthy social life in the rural districts and educational advantages by better schools, lectures, literature and demonstrations in each community.

I will not detain you longer except to state that I believe there should be a means of bringing the producer and the consumer in the larger centres closer together, so that we can cut out a good deal of that unnecessarily wide margin

between what the producer receives and the consumer pays. I have had some correspondence with your good Mayor as to how this can be effected, and I believe the day is not far distant when a workable plan of co-operation on the part of the women and men in the rural districts with distributing organizations in the city will make it possible for the producer on the one hand to get a larger proportion of what the consumer pays, and the consumer on the other hand to get his produce at a less cost. I have great pleasure in proposing the toast to our hosts, the City of Ottawa, and the Women's Organizations of the City of Ottawa.

The Mayor of Ottawa, MR. FISHER, in a few humorous remarks responded to this toast, and bade them welcome to the city.

There are many problems, he continued, that we can discuss with great advantage in joint meetings of city people and country people, and we can come to understand each other's difficulties. I have noticed lately that some problems seem to be clearing themselves up. We used to talk about the movement back to the land, and in the last two or three months there has been a very notable movement from the cities towards the land.

THE VICTORY LOAN.

HON. N. W. ROWELL, OTTAWA.

I am very glad to have this opportunity of meeting with the representatives of the Women's Institutes of Eastern Ontario, and to speak to them for a very few minutes on the question of the Victory Loan. Of all those in Canada who have been devoting their thought and effort to assisting in patriotic work ever since the war broke out, none have been more indefatigable in their labors than the members of the Women's Institutes throughout the Province of Ontario, and therefore in coming to you this afternoon on the question of the Victory Loan, I am speaking to you on a question that is just as near your hearts as those of us who may address you, and one in which you are just as vitally interested.

We very often hear it said it is a good thing to kill two birds with one stone. In this Victory Loan we are killing three. By assisting in the raising of this money, we are rendering a real service to the cause of liberty and the men at the front. You are also rendering a very practical service to the people of Canada in helping to maintain the agricultural and industrial life of the country. At the same time you are rendering to yourselves a valuable service, by subscribing, in encouraging thrift and economy and in putting by a valuable asset for a day of need in the future.

Just a word or two on each branch. Mr. Lloyd George said in the early days of the war that this war must be won by silver bullets. At that time people thought that was probably a wide, wide stretch of the imagination, but recent events are compelling us more and more to realize that that may be a statement of very deep and vital truth connected with the whole military situation. At the present time there is no demand more urgent than that money should be available to enable the Allies to continue fighting in this struggle.

Germany while possessing many disadvantages because she is cut off from the outside world has this one advantage that she is able to trade within her own border and to require her own people to sell their goods and supplies to the Government on credit and to accept credit of the Government in payment. Great

Britain in her purchases from Canada and the other Dominions and in her purchases in neutral or allied countries has, up to this time or largely up to this time, paid for what she has purchased either in gold or the sale of her own securities, but gold is not inexhaustible; and securities are not inexhaustible, and the time has come if Great Britain wishes to continue in the vigorous prosecution of the war that she must conserve what she has left and must pursue the policy which Germany has been pursuing for the past two or three years—and purchase on credit. If we are to continue to render real assistance to Great Britain in supplying munitions and food for the overseas troops and allies, we can only do so by raising the necessary money to lend to Great Britain in order that she may buy the supplies from us. It is essential if we are to continue to support the soldiers at the front that this Victory Loan should be raised and the money made available for that purpose.

Then I said it helped Canada industrially and agriculturally. It follows from what I have said and it has been repeatedly announced in the press that Great Britain in making her purchases in Canada is purchasing here on credit. If we are to continue to send to Great Britain the amount of agricultural products, the amount of munitions and other necessary war supplies that we are able to finance within our own border, and if the products of the farm are to be available for the soldiers at the front and for the feeding of the people of Great Britain and the Allies, and if we are to continue our industrial operations at home, we must raise the money to pay for these products, to advance money to Great Britain to pay for these products whether of the farm or factory. In assisting in raising the Victory Loan you are assisting the whole agricultural community as well as assisting the people of the cities to market the products of the factories, and thereby enabling them to buy the products of the farm. In that way you are helping yourselves.

Then the third: It is not a sacrifice; it is simply lending. Those who invest in the loan are not giving any money to the Government, they are not giving any money to the cause of the war, they are purchasing an investment, a good Government security at a reasonable rate of interest, and every dollar saved in this way and invested in the Victory Loan, which otherwise might be spent on some unnecessary articles of use or pleasure, is providing a reserve of investment that will help to tide us all over the difficult times that are going to follow this war.

MRS. LEGGETT: For what length of time is the money needed?

MR. MACPHERSON: The money may be loaned for a period of five years, ten years or twenty years.

MR. PUTNAM: If one wishes to realize on his investment at the end of the first year, what steps should he take?

MR. MACPHERSON: Anybody wishing to realize upon his investment before the bond is due, can always do so. In the Montreal and Toronto Stock Exchange, bond houses and brokers' offices of this country, all the previous war loans have been traded in every day, and in a good many cases, people have been able to secure more for their bonds than they paid for them.

LADY BORDEN: I have been asked to perform a very pleasant task, to propose the health of the Women's Institutes. We are very glad that your convention has been held in Ottawa, and I am sure we can all learn a great deal from your deliberations. Your work is far-reaching, and I assure you that we all appreciate the splendid efforts you are making. May I express the hope that you have

enjoyed your visit, and when you return to your homes you will carry with you pleasant recollections of the women you have met and the life in the Capital of the Dominion. I have much pleasure in proposing the health of the Women's Institutes.

MRS. C. F. YATES: I am sure it is very gratifying to us as Women's Institute workers to listen to the kindly sympathetic remarks concerning our organization and its work. I am sure we will each one of us go home to our Institutes filled with a keener enthusiasm and greater zeal, which being radiated in our Institutes, will be reduced to more genuine, earnest activity. Let us, each one, make ourselves worthy of those things that have been said; let us remind ourselves that it is one of the great motives of the Women's Institutes to be a medium through which the viewpoints and ideals of the community may find expression. If we are, as has been suggested, to be a means whereby the public spirit is to be aroused and cultivated, we must carry on our meetings in such a way as to bring this about; our meetings must be attractive, and must arouse public interest in the things which are for our country's betterment. In order to do this, we should avail ourselves of the excellent literature which has been suggested by Dr. Patterson yesterday; and we should make a systematic study of it, of parliamentary procedure and so on. If our Institute work is to continue we should feel it our duty to educate our young girls along these lines, and if conscientiously we desire this, there are many means of working our young girls into the Institute work, by giving them responsible positions and allowing them to assist us in our programmes.

I wish to say that I think each one of us should go on with the determination to put forth every effort possible to live up to and make a study of the high ideals which our motto, "For Home and Country" suggests, and I wish we would carry further into our Institute work the idea suggested by Dr. Robertson last night. You remember he said he thought the most appropriate grace now is, "I do this in remembrance of Thee." If that is to be a stimulus for us to conserve food and assist our country in this way, should we not carry that everywhere? Let us have this thought dominate in the lives, "Lord, I do this in remembrance of Thee," when it will be at least an impetus for us to do our best.

MRS. McDUGAL, Maxville: When asked to speak this afternoon, I thought perhaps it would be well to speak to you about the social side of the Women's Institutes. You may have noticed that the social activities of the women of Canada have changed very much in recent years. It used to be along the line of receptions and balls and so on, but now it has taken on different lines. In the Women's Institutes as in other societies, we find that co-operation is what our social life has led us to. I think "co-operation" is one of the most beautiful words in the English language, and it expresses the spirit and purpose of the Women's Institutes. We no longer say "hoe your own row," but we co-operate our energies, and use them as a traction engine in order that we may till the whole field.

It is useless to think of destroying weeds by cultivating our own garden only. Co-operation, combination and work! What a beautiful vision—something to do and something to do it with. That is the Women's Institutes. It has brought together many and various elements in our communities, and it has been the magic wand of common interest, and it has swept away differences, the point of contact being either the better sanitation of our homes or the better nourishing of our babies—possibly just a new recipe. I have seen women, separated by

mountains of class distinction or sect prejudice, grow quite chummy over a new recipe for Johnny cake.

When I heard Mrs. Muldrew speak to-day, I said, "What a terrible problem is before us," and I wondered if we were big enough for the problem. But whether we are big enough or not, it is before us, and I think it depends largely on whether we are able to empty ourselves of our own interests in order that we may take in the interests of Canada.

Mrs. J. A. WILSON in proposing the toast "The Patriotic Work of the Women's Institutes," said she thought all the work that the Women's Institutes were engaged in was very patriotic indeed, and possibly one of the most patriotic duties of women to-day was to see that the rising generations are brought up well equipped physically and mentally to serve their country in the days to come. She spoke in brief of the patriotic work we are faced with in relieving the suffering people of Belgium, Serbia and other countries laid destitute by the war, and the great work that lies before the women of Canada in lending assistance to the convalescent homes.

Regarding the sending of separate parcels to individuals through the Red Cross, Mrs. Wilson said it was unfortunate, but that was an utter impossibility on account of the gigantic nature of the work. What the Red Cross required most was the three main garments—socks, pyjamas and dressing gowns, and she thanked the Women's Institutes very much for their very generous supplies with these and many other articles for use of the men at the front and the wounded in the hospitals.

MISS PEARSON, in responding to the toast, said: Our Institutes throughout Ontario have done a very great deal of patriotic work, Red Cross work, and I suppose the tabulated results would make very interesting figures, and the Institutes have done this work with a very commendable spirit. About two weeks ago I read a little paragraph in one of the Toronto papers in which it said, "Now in the fourth year of the war, and with the winter approaching, supplies are falling off." Will you, ladies, in addition to the thoughts that you have acquired at this Convention, and in addition to the good resolutions that you have formed, take this thought from me, and add this resolution to the others that you will go home determined to do a little more to help the output from your Institute to the Red Cross Society. If every individual member of our 30,000 members in Ontario will make that determination, the added output for the Red Cross will be very considerable.

THE CHAIRMAN then called upon Mrs. Muldrew to conclude the speeches, and reply to Mrs. Wilson's toast.

Mrs. MULDREW: We have heard a little bit about the country woman and the city woman, the Western woman and the Eastern woman, but in the great war work, there is no difference; we are all the same. In the West the cry came "Back to the vacant lots." You have heard about our vacant lots out West—the big open spaces—and the women of the West cultivated the vacant lots and sold the produce for patriotic purposes.

One other thing. It is possible for every woman to adopt a prisoner of war. I had a letter recently from a friend who said "I need a better position than ever before because I have adopted a family of five"—five prisoners of war, and she is sending the money to supply those five men. That is good patriotic work.

The Convention then adjourned.

WESTERN ONTARIO CONVENTION

The opening session of the fourth annual convention of the Women's Institutes of Western Ontario was held in the Y. M. C. A. auditorium, London, in the forenoon of Wednesday, November 14th. There was an attendance of about 300 at the opening session, when Mrs. Neil Grant, of Becher, occupied the chair, and opened the proceedings by calling on the delegates present to sing the National Anthem and the Institute Ode. The session was devoted to the presentation of reports which are given herein in a condensed form.

EXTRACTS FROM BRANCH REPORTS.

CLIFFORD.—This branch with a membership of 50, reports that success has crowned all its efforts during the past years. Although there is a Junior and Senior Patriotic Society in the village to which all the Institute members belong, still, through the Institute alone, \$150 was raised for patriotic purposes and a bale of clothing valued at \$220 was sent to the Belgians. The Institute remembers the Children's Aid Society by sending each year barrels of preserved fruit and garden vegetables. Two bales of quilts and clothing were sent to fire sufferers in Northern Ontario. The young girls assist with the programmes by supplying the musical part, giving readings and taking part in debates. This branch also has a "magazine library" costing about \$25 a year. Each member has free access every Saturday and is allowed to take one book out a week. A librarian is paid to look after the library and keep tally of the books taken.

HARWICH CENTRE.—Raised \$150 for patriotic purposes by a cooking and rummage sale, and \$52 by selling tickets on a calf donated to the Institute. This branch has a school visiting committee composed of three ladies appointed every three months. The result is that the school is made more homelike and sanitary. Several quilts are made for the Children's Shelter.

RODNEY.—Has adopted the system of electing officers by a nominating committee appointed at the end of the business year. Each member of the Institute is on some committee. Social evening is held every week at which Red Cross work is done. Seven hundred and forty-eight dollars was raised for patriotic work during the year. The work of keeping and beautifying the cemetery has been undertaken. The members are reviving the interest in the public library and are adding new books from time to time.

BOTHWELL.—Has had a busy and prosperous year, confining activities principally to war work. Seventy-five dollars was sent to Canadian Red Cross, \$504.85 to British Red Cross; \$80 was donated to a local society for aiding returned soldiers. One hundred and five jars of fruit, 30 dozen eggs and a quantity of oranges and apples were sent to London Convalescent Hospital. The local work is to care for the town cemetery.

KINGSMILL.—Raised \$340 for patriotic work during the year. One meeting was given over to the girls, another to the mothers and a third to the grandmothers. An embroidery demonstration was much appreciated by the young girls. Everything is done according to parliamentary rules as far as possible.

BELMORE INSTITUTE.—Gave bales of clothing to the Red Cross to the value of \$230 and \$50 to the Canadian War Contingent. The young people gave a play last winter and handed to the Institute \$75.71. The Literary Society gave \$38 and a garden party brought in \$198.44.

REPORT OF THE GARDENING ASSOCIATION OF LONDON.

MISS L. M. CARLING, LONDON.

It is a little more than a year now since the Gardening Association of London was organized, and it has more than fulfilled its predictions. It began with a membership of forty and increased to a hundred and fifty before the year had passed. The members have all been real and enthusiastic workers with the principal idea of increasing the food supply by growing their own vegetables, thereby leaving the market gardeners and farmers a chance of sending more of their produce overseas, or selling to canning factories who send their canned goods to the soldiers.

In Ottawa, last summer, the members of the Women's Gardening Association had a cart of their own in which they took turns to sell vegetables in the market every day. At the end of the season they had cleared seven hundred dollars which was given to the Red Cross Society.

Our Association began with monthly lectures by experienced gardeners, on the best methods of growing vegetables. In addition to the private gardens of members in April, six community gardens were started in different parts of the city divided into small plots for members who had not land of their own. The Mayor and Council kindly consented to have the lots plowed for us. One or two convenors were in charge of each community garden. The results were most gratifying to them, and several of the women of small means grew enough in their small plots to supply their families for the whole winter. The largest number of women and girls working in the one garden was at Belvidere (Col. Smith's residence) forty-two or three women and girls, with three convenors. About two hundred bags of potatoes were grown as well as other vegetables. The work of the young girls has so encouraged us that we are having land plowed now for several new gardens next spring, and we hope to have them principally worked by young girls. We feel it is the beginning of a great work and may solve greatly the difficult problem of keeping young girls sufficiently interested that there will not be a desire, especially in the cities, to be on the streets. We hope to give them a love for work in the open air, and as a result a greater love of nature, and its many lessons, and also improved health. It is hoped that intensive farming will follow last summer's beginning. Many of the girls may marry returned soldiers, and with the taste for outdoor life, "going back to the land" may not be so far distant as we think, or as distasteful as it has been to many of our young people. Make it popular, and with the improved facilities for farming—hydro in the country districts, motors, telephones, electric railways, added to an intelligent and scientific knowledge of the easiest and best methods of farming by men and also women, it should be an ideal life, and would certainly be most healthful. For women alone, intensive farms should be near cities or towns, and I am told that three women each experts in their own branches, and having a little money, make it pay on one small farm, without hiring labor. An occasional pupil taken would be a help.

By intensive farming for women, I mean, market gardening including small fruits, poultry, and bees. Dairying might be a separate branch for supplying milk for children and invalids, especially near cities and summer resorts. Another money making industry would be, in connection with these farms, at intervals of eight to ten miles, tea rooms near the good motoring roads during the spring

and summer and autumn months. The products of the farm might be used. For instance, make fried chicken a specialty, and with the addition of fresh fruits and cream, these places might become an attraction for motorists and also be remunerative.

To go back to our gardens: In July, a teacher of canning vegetables was procured from the Ontario Government, and many of our members took advantage of the instruction and canned their own vegetables, especially the little girls who took great interest in the work. We are learning such lessons of thrift during this war, and are surprised at our appalling wastefulness in the past.

The Gardening Association had an exhibit of vegetables at the Western Fair, which was most creditable. Prizes were given by citizens interested in the cause. This is our first year's report. Next year, I hope to tell you that we have expanded wonderfully.

We watch and admire your work, and as our aims are all the same, we hope we can do much to help one another. Encouraging and training our Canadian women to live more in the open air, studying nature, and also all branches of Domestic Science is a work, the good of which cannot be over-estimated.

REPORT OF KINGSMILL BRANCH.

MRS. JNO. BRAY, R. R. 1, KINGSMILL.

This is not a Red Cross report. As I understand it, when we were asked to give these reports it was along the line of Institute work, and while we did Red Cross work I am not giving any detailed account of that. We have no separate organization in our community in which to do Red Cross work, we do it in the Institute. Several of our members are members of the Red Cross in the adjoining town and through them we do our work. During the year we raised and expended \$340 for Red Cross work. Our meetings are held in the homes of the members, our idea being that this method tends to break down that lack of sociability apparent at meetings held in public halls. If we have a special speaker we hold the meeting in a hall.

At the beginning of the year the President stimulated some interest by introducing real competition into our Institute by having the first meeting taken by the girls, the second by the young mothers, and the third by the grandmothers, and, as I remember, the grandmothers excelled, their papers being a real inspiration. This plan lessened the work for the President and added much to the Institute work. The work for the year was well balanced, in that it provided activity for all, from the youngest to the oldest. We had one historical paper on the Indians of Ontario. We had two papers that were of interest to mothers, one entitled "Culture by Atmosphere," and the other "Child Culture." These papers were given by our own members. I think it is very excellent to have outside speakers come, but it certainly does not develop the people in the Institute. If you are going to have the young girls in the Institute, you must give them something that will be of interest to them. We had an embroidery demonstration and it was very much appreciated. We endeavor to do business according to parliamentary rules as far as possible.

DISTRICT REPORTS.

WEST HURON, presented by MRS. A. M. KIRK, R. R. 6, Goderich: I was delighted with that last report, and I fully agree with what was said as to interesting the young girls. If we are going to have good Institute meetings we want to have the young girls at the meetings, and we will not have them there unless we give them something interesting to do. We must study what will interest the young girls.

West Huron District consists of nine branches which contributed during the year 1916-17, \$5,100 for patriotic purposes. This money has been raised in various ways; by the sale of home-made baking and candy, papers, magazines, rubbers and rags; serving meals on fair days; bazaars, pancake and pie socials; euchre parties; and the sale of autograph quilts; concerts and amateur dramatics for the branches. One Dramatic Club made over \$1,000 for Red Cross work in this way. The township gave a grant to be divided between Women's Institutes and Red Cross circles.

Wingham Branch sends a pair of socks each month to her many soldier boys. This branch had a sock contest and in one month nearly 1,000 pairs of socks were knit. The ladies chose sides and the losing side gave a lunch at the next regular meeting. Most of the branches give something towards the Children's Aid, sometimes money, or clothing, sometimes both. Many of the branches take a collection at each meeting for flowers and books for the sick. While Red Cross and patriotic work demands the most of our time, still the Institute work is not by any means neglected. Each branch has programme cards with one or two topics for each month and sometimes a demonstration. This fall we had a canning demonstrator, and I think as a result a great many vegetables were canned. Most of the branches had the summer delegate last year. I believe these delegates do a lot of good and bring to us new ideas as well as instruction on various lines.

We always decide at our District Annual Meeting where and when we will meet next year, thus saving the expense of a meeting of the district representatives.

Each branch is planning to pursue the work of raising funds and making up material while the war lasts. I think the Women's Institute is doing a good work in bringing the women of the town and country nearer to each other, and each are learning the needs of the other. I find the branches in sympathy with each other and getting along amicably. The West Huron District is proud of the givings of the Women's Institutes of Ontario and we are pleased to have even a small part in such a grand work.

SOUTH PERTH, MRS. GEO. WEBSTER, St. Mary's: In South Perth there are eight branches with an aggregate membership of 323, and they have given \$3,540 for patriotic purposes during the year. It is not possible to tabulate all the work that is being done by the different branches as at some of the meetings the regular Institute work is taken up. Papers are given on different subjects and addresses that inspire the members with higher ideals of life.

MITCHELL BRANCH.—Has worked with the Patriotic Society of the town, largely. They gave \$257.91 for patriotic purposes. During the year a garden party was held; two knitting teas, and a concert, and \$58.81 was raised by collections.

SEBRINGVILLE.—Spent \$20 a month buying material for sewing and knitting, besides contributing to the British Red Cross, Belgian Relief and the Soldiers' Comforts.

ST. PAUL'S BRANCH.—Raised during the year \$870. They made 214 day shirts, 319 pairs socks and 33 sheets.

STAFFA.—Sent to the Red Cross 415 pairs socks, 143 suits of pyjamas, 175 hospital shirts, 128 military flannel shirts, 100 towels, 56 dressing gowns, 50 sheets, 4 quilts, and 47 boxes to the boys at the front, all amounting to \$1,519.45.

FULLARTON BRANCH.—Sent goods to the Red Cross valued at \$548.77.

KIRKTOWN BRANCH.—Raised \$58 for patriotic work but most of their work is done in connection with the Patriotic Society.

TAVISTOCK.—Works with the Patriotic Society of the town. They have a physical culture class organized.

ST. MARY'S.—Works in connection with the Patriotic Society of the town. They gave \$25 to Dr. Fraleigh for the Western University Medical Unit. They sent a shipment of vegetables to the Woman's Hospital in Toronto. Arrangements are being made for the co-operative buying of fish.

AFTERNOON SESSION, NOVEMBER 14th.

MRS. J. M. MCCALLUM, Shakespeare, presided, and the REV. R. G. PEEVER, B.D., led in devotional exercises.

ADDRESS OF WELCOME.

MRS. DONALD MCLEAN, PRESIDENT WOMEN'S CANADIAN CLUB, LONDON.

I was thinking that it scarcely seems a year since our Women's Canadian Club had the privilege of welcoming the members of this Association at our Normal School. I need not say anything about the busy times to the women present, because there is not an idle woman in this hall. We have very strong evidence of the busy lives of the women of the Women's Institute. We in London wondered what we would have done, in this patriotic work in which we are engaged were it not for the wonderful help we received from the women of the rural districts. When we know that there are 180 of these Institutes represented here, and that there are eight counties, we begin to see the extent of the work. That your work has been appreciated is evidenced by the recognition that is given to the work of the women by the civic authorities. Our Mayor and the Aldermen feel honored to-day in having the privilege of entertaining these splendid women, who are the backbone of the country. It has been the custom in the past to give these entertainments simply to men. It shows the signs of the times when they are beginning to realize that women are worth while. That they become more worth while when they have the vote goes without saying. (Applause.) We do appreciate the efforts for reform that you women are putting up wherever you are located."

The speaker then made reference to the activities of the Institutes in the medical inspection of schools, care of cemeteries, the establishment of reading rooms and rest-rooms, encouragement of school gardens, etc. "Then you have the knitting and the patriotic work. Your Mrs. Edwards came into the Red Cross room yesterday and handed over \$750 of real money, \$500 of it was for your ward in the Byron Sanitorium, which will be a lasting monument to the

women of the Women's Institutes. This is a wonderful evidence of self-sacrifice. This money does not grow out of the mud. We all know how hard it is to have extra money during these trying times. That the women in the rural districts are able to do all this work and then contribute so much real money is indeed wonderful. We hope to see you all this afternoon. The Mayor has kindly tendered a banquet to the Women's Institutes, and has asked the women of the Women's Canadian Club to be the hostesses. We have taken considerable pains to make you comfortable and it goes without saying that you will be. The women of London consider it a privilege indeed to have our sisters from the surrounding district with us as our guests and we hope your meeting will be conducive to much profit.

MRS. YARKER, Local Council of Women, London: Owing to illness our President is unable to be with you, and she has asked me to convey to you a hearty welcome from the Local Council of Women. It comprises nearly all the organizations in the city, some 1,700 women, and I think when I convey to you a welcome from that organization it is no small welcome, and it is just as hearty as it is large. I only wish Mrs. Hoodless had been spared to see the result of her work in organizing the Women's Institutes of Ontario. Her loss has been great in many ways, but her memory still lives. The Women's Institutes is one of the most appreciated of our affiliated societies. The Canadian Club is another one that we appreciate. I know that you will be well looked after in London, and once more I convey to you the greetings of the women of London on behalf of Mrs. Boomer, our President.

REPLY TO ADDRESS OF WELCOME.

MISS K. McINTOSH, PARKHILL.

The representatives of the Women's Institutes in Western Ontario appreciate this hospitable greeting. I am sure I express the thought of every delegate present in thanking the Women's Canadian Club and the Local Council of Women of London for their kindly welcome. Rural Ontario has not the Women's Canadian Club but the Women's Institute whose aims are expressed in the motto "For Home and Country." This surely has an added importance now. Institute work has since its inception, striven to be intensely practical, educating its members, the great majority of whom are home-makers—from the consideration of domestic problems alone to fields of labor for others outside the homes, yet maintaining a fine co-operation between the two. While attention has been paid to all the lighter forms of agriculture for women, much thought and effort has been expended on the sciences of housekeeping and home-making. The work developed with the development of the child—child-welfare. Improved sanitation of rural schools, beautifying their surroundings; school fairs and gardens, in short, all forms of civic improvement and community work have been our aim. Yet in none of these, perhaps, has the motto been so fully expressed as in the medical and dental inspection of rural schools. This is so well known to-day that only mention is required, except to say that if only a few children in our land have been benefited—nay, if only one child life has been helped grow to a more useful citizenship—all the hard work and opposition borne by enthusiastic women throughout the initial stages of the establishment of rural medical school inspection has not been in vain.

Demonstration Lecture Courses of Domestic Science, Sewing and Home Nursing given throughout the country have been largely attended, and much valued. Since organized effort is so much more effectual than individual attempt, the vast amounts of Red Cross and patriotic work accomplished by rural Ontario these last three years has been possible because country women already had the Institute. A better social life is a feature of the community which this organization is giving to those who accept the opportunity it offers a broadened outlook and a kindlier neighborhood spirit.

Those who will carry on the work of some 900 branches in Ontario into the to-morrow of the future are the girls of to-day. Girls have always been welcomed into the Institute, but the Department has formulated plans by which the girls may have more of a part in the work. Where there are large numbers of girls, they may form a Girls' Institute or Girls' Club with its own officers, based on the same principles as the Women's Institutes, with an advisory board from the Women's Institute, the girls being responsible for at least two combined meetings in the year. Where there are only a few girls, they may form a girls' committee of the Women's Institute or simply take the place of members at the regular meetings and other activities. These girls have ideas to work out, and we need them in the Institute. Let us think and plan and pray to help these girls become the best guardians of Home and Country. "They were born capable of being." Let us interest and educate and enthuse them with the vision of the benefit they may render our Canada through this work, and the future of the Women's Institutes stands perfectly assured. Surely since the burden we bear to-day is so heavy, we ought to take it up joyfully, thankfully at least that this generation has been deemed suitable for the sacrifice and service. We are offered the opportunity to give; for, after all, service gladly rendered our fellows in whatever sphere we are placed is the greatest work we can do for Home and Country. Let us waste no moment in unproductive labor. Let us remember that every pound of food saved and every dollar saved means just that much more produced. Being weighed in the balance, let us not be found wanting in honor, patriotism and self-sacrifice. To quote from Kipling's "Prayer for the English Children"—

Land of our birth, our faith, our pride,
For whose dear sake our fathers died,
Oh! Motherland we pledge to thee,
Head, heart and hand through the years to be.

REPORT OF SUPERINTENDENT.

GEO. A. PUTNAM, SUPERINTENDENT OF WOMEN'S INSTITUTES FOR ONTARIO.

I always consider it a privilege to meet with the women of ability, experience and action identified with the Institute, not only in Western Ontario but throughout the whole Province. I speak advisedly when I say women of ability; an organization such as yours appeals to women of ability. The woman of *ability* who has *responsibility* is of much greater value to the community than the woman of ability who sits in luxury and leisure, not exercising her ability or accepting responsibility. We appreciate the fact that you women of ability have been able to look well after your home duties, and yet give some of your time to go out in your respective communities as women of action along most helpful lines.

I am sure that we all appreciated that splendid address that we have just had from Miss McIntosh. It goes to show the result of the great work you have been doing all along the line of women's activity. Patriotic effort rightly continues to be your chief, almost only, work. Collectively your contributions amount to an immense sum. The individual branches are to be commended for the work they have done. We heard from some of the speakers this morning that while they had many enthusiastic workers in connection with their branches, there were a few individuals who do not feel a responsibility. It is essential that each member should put forth some effort in this gigantic struggle.

After a reference to the patriotic givings of several branches, the speaker continued: I wish to convey to you the thanks of Sir William Hearst and his associates in the Government for the work you have been doing along patriotic lines. Sir William Hearst has a soft spot in his heart for the Women's Institute. He is now Minister of Agriculture as well as Premier, and I can assure you that you will have his most liberal support, and a kindly consideration of your requests and recommendations. I have no fear but that you will continue to render splendid service along patriotic lines. It is an easy matter for many people to give money, but it is essential that you should give of your labor, and that is what many of your members are doing.

Our membership is about the same as it was last year. We are about 30,000 strong in 900 centres. We have apparently lost some members in centres where other organizations of a patriotic nature have been formed. We have not permanently lost them, because their hearts are with the Institute, and all broad-minded women with an interest in community building must be concerned with these problems which will enlist the attention and activity of the Institutes to a larger extent as soon as peace is restored. As soon as conditions are normal again you will see the Institute grow with leaps and bounds. We have done well to a little better than hold our own in membership in these trying times. The practical nature of your work is emphasized by the fact that before the war broke out you were giving attention to such essential things as food production, and a wise utilization of the same. We in the city have come to think that the side lines on the farm, eggs, small fruits, etc., are very important items in these days of food shortage and high prices. We recognize that women are coming to have a more and more to do with the production of these important articles of diet. It is surprising the number of letters that reach the Department in which it is stated that the writer regrets that she was not able to devote the time she would like to devote to patriotic work on account of the lack of farm help. Women have even had to drive heavy machinery and help with the haying and harvesting, and they have done it cheerfully and without a murmur.

A number of the city people went out to the farms this season for a few weeks, and generally speaking, especially the High School boys, rendered excellent service. I do not believe that many of these people fully appreciate what working on a farm means, because two or three weeks on a farm in the summer time, especially in a fruit district, is a beautiful holiday for a city man or boy. What we want in Ontario and what we must have is a larger number of people who will go to the land and stay there the whole year round. We want them to stay on the farm during the wet and cold days of the fall and the severe days of the winter.

In the Women's Institute garden campaign, we sent out ten lots of seeds each containing sixteen kinds to 250 different centres, and the members grew therefrom a considerable quantity of vegetables. The distribution of this seed induced

many others to give increased attention to the growing of vegetables. This increased production was followed by a request that we assist the growers to conserve the crop. A bulletin on canning and preserving was published and a hundred thousand copies were distributed from one end of the Province to the other. We responded to the request for demonstrators to give instruction in up-to-date methods of canning fruit and vegetables. Demonstrations were given at 185 points and the attendance was over 15,000.

Reference was made to the possibilities of co-operation among the members of the Institute, and as an example the Canning Centre was cited. "May I express the hope that in many centres in the Province we will have a duplication of that excellent work next year. I am not speaking with authority, but I think you can depend on liberal support in the establishment of canning centres. The material results alone at Parkhill are a justification for the extension of co-operation among the women, but when you consider that all classes and interests have been united in this splendid work, the effort is doubly worth while. A report on this will be found on page 150.

The strength of the Institutes in the past has been due to the fact that partyism, class distinction, sectarianism, and controversial discussions have been kept out of the organization, and I have faith that in the future your work will not be hampered by the recognition of these non-essentials.

The speaker appealed to the members to continue their assistance to the schools, to encourage medical school inspection, to secure permanent or travelling libraries, to provide wholesome entertainment, etc., features that are dealt with elsewhere in this volume.

COMMUNICABLE DISEASES.

H. W. HILL, MEDICAL OFFICER OF HEALTH, LONDON.

I listened with the greatest interest to the splendid address that has just been given. The absolute facts were put out one after the other so that no one could miss them. It struck me as curious at the time that you should be talking about food when I came in, because the necessity for food and desire for food is such an important thing to us; not only the desire of ourselves to eat something, but also because of the desire of disease germs to eat us, and that desire of theirs causes communicable diseases. You will remember, if you go far enough back into history, that our ancestors supposed that epidemics of disease, sweeping over the land, were due to some very mysterious cause quite beyond the grasp of the human mind—some punishment of the people sent by God for their sins. Then a few people who did not jump at conclusions began to think, and wondered what kind of a God it was that would punish for their sins chiefly the children; why should the most innocent part of the population suffer the most? They began to think that perhaps God's punishment was not the explanation. Then they turned around and said disease was due to the "malignant evil of the devil." Our ancestors were quick in finding explanations. If one did not suit, try the opposite. There is a custom which we all have when we want to yawn of putting the hand over the mouth; not for politeness really, but to prevent the Devil from jumping down our throat. That belief in the Devil producing disease is the origin of that custom.

Then we went through the stage where bad smells were supposed to produce disease, and to this day you will find in our Statute books, especially the older ones, legislation against bad smells. These Statutes against smells were passed, not because the bad smells were disagreeable but because it was thought that they produced disease. If there were any necessity to upset that idea in these days, all you would have to do is to consider the trenches in Flanders. The men who are over there suffer shot and shell and noise to such an extent that they cannot sleep or eat; they have to lie in the mud and do many things that are hard to bear. But when they come back we find that the one impression that was made on them was, not the noise or the mud or the shot and shell, but the infernal stench, the fearful all pervading smell; yet the men in the trenches are healthier than our ordinary civilians. Does not that finally dispose of the old doctrine that smells produce disease? How about dirt? What is the dirtiest place in the world? Again, the trenches, and yet the healthiest people in the world are right there in the trenches. There is less disease among the men in the trenches than in men of the same age out of the trenches in civilian life, a great deal less. Dirt and stench do not make disease, either one at a time or both together. Here is another very simple illustration from everyday life. Which are the dirtier, girls or boys? Everybody will answer, boys of course. Even if you were an audience of men you would say the same. Who are the healthier, girls or boys? Boys. The actual percentage of infectious diseases amongst boys is less than amongst girls. We found that out when making investigations of the school children in London. There is not very much difference, but the difference is in favor of the boys. I am not advocating dirt, but dirt does not produce disease. What does? The little germs, these tiny little plants, accustomed to live in our bodies. Just exactly as the wild strawberry originates, a little bit of a berry, when cultivated and cared for and kept in a greenhouse develops a huge size, just so disease germs will develop very rapidly inside the body. There are some fifteen hundred of these germs that we have labelled, and a number that we do not know. Most of them live wild, so to speak, outside the body, and will not develop inside the body. But some of them have got to the point where they will live only under "hot house" conditions, that is, in the human body. Our bodies furnish the conditions which are necessary to them. Just as you could not grow tropical plants up here out of doors, but if you put them in a hothouse they will flourish, so these disease germs will live in our bodies. They are practically our 42nd cousins. They are made of the same things that we are. If you analyze the material of the germ you will find it is practically the same material as the human body. You can prove that without a moment's hesitation; they are made of the same things as we are, because *they eat us*. The basis of all infectious disease is that these little germs get into the body and destroy the body. What makes these diseases infectious is the fact that the germs can be passed on from one person to another. That applies to all our infectious diseases, the common ordinary chicken-pox, measles, scarlet fever, typhoid, diphtheria, etc. We have known of this for a long time; we have legislated about it and we know what to do. If to-morrow I get a case of chicken-pox, a very mild innocent disease, but an infectious disease, it is my duty, under the law, to isolate that case. I must notify the school, and keep that boy or girl, man or woman in isolation for a certain length of time. If that person goes out where he can spread the germs to others, I can put that person into court, and I have done it. I can get them fined, I can have them put in jail: People appreciate that chicken-pox will

spread, and that we have a perfect right to prevent it from spreading by curtailing the liberty of the citizen.

We understand now that the venereal diseases, syphilis and gonorrhea, are exactly on the same basis. They also are due to little plants, little germs that will grow, practically speaking, only in the human body. We can with great effort manage to grow them in the laboratory, where we have special conditions to keep them at the right temperature, etc. But practically speaking they grow only in the human body. These diseases are infectious or communicable for exactly the same reasons as scarlet fever or chicken-pox; because the little germ leaves the body and passes on to some other body. It does not make any difference how it escapes from one body to another as long as it gets there, and then the disease begins. About one-half of the venereal diseases in the country are innocently contracted. It is a great misfortune that these diseases are labelled venereal. It at once makes people think of some horrible crime committed, some disgraceful situation, and so on, with the result that until very recently people would not even listen to anything concerning the disease. That is one of the great difficulties that we have had in the past. One of the great good things that has come out of the war is the fact that I am also to be here to-day to speak to you about that subject at your request—a subject which would have driven our ancestors out of the hall. To think of any man daring to speak on such a subject, especially to an audience of women. That publicity on these subjects is one of the big results of the war. I am not going to go into the subject in detail; I am merely going to hit some of the high spots and ask you to continue the subject by means of questions and discussion. One of the points I wish to bring out is this: We know that in the public mind syphilis is considered such a terrible disease, a thing scarcely to be spoken of, except in a whisper. Syphilis forms about one-sixth to one-eighth of the total amount of serious venereal diseases; the rest is gonorrhea. A great many people consider that gonorrhea is a very mild thing, but let me tell you that if we had a convention of the very best people in the world, and if you could imagine the fairy godmother of our youth coming forward and saying to them, "Here I have a great gift for you, you may have either one of these two diseases completely wiped out, so that they will never be any more; which one will you choose to have wiped out?" If these people were people of modern education on this subject, and if they appreciated the whole situation thoroughly and understood it completely in all its details, they would say "abolish gonorrhea and you may leave us syphilis." Why? In the first place there is a great deal less syphilis than there is gonorrhea. In the second place because we know how to handle syphilis and we do not know so well how to handle gonorrhea. It is an old thing, which probably most of you have heard, that 60 per cent. to 80 per cent. of the major operations on women are due to early gonorrhea in their husbands. Take that fact alone, and the fact that the majority of cases of blindness among children is due to gonorrhea in the mother, and you can see the great harm done by this disease. The disease is contracted quite often from the husband who perhaps got it when scarcely more than a boy, from some woman of course. It is not a man's problem alone: when these diseases are contracted some woman is involved nearly every time. It is your problem quite as much as it is the problem of the man. This has been realized very strongly by a great many women of late. The facts which have come to light with regard to this disease in relation to the military have stirred women up to take a definite stand in the matter. Let me tell you ladies that although the war and the organization of the army has brought this to the light,

it is not the army that has been responsible for this disease. Right to-day the army has only half the amount of this disease the civilian population has. (Applause.) Where did the army get it from? From the civil population. It cannot possibly be any other way. Our army is a civilian army in the first place, made right out of the civilian population. Hardly any of them out of civil life more than three years then—they got it from civilians—from women. Some women have realized this to such an extent that to-day in Toronto they have formed what are known as “women patrols” who go into the parks and other places and inquire of these women, who are looking for the soldiers: “What are you doing here?” Women can do that. You cannot say “Oh! the vile lusts of man,” and push the whole thing aside. Women are responsible as a group, and the women must look after this problem from a woman’s standpoint. The main thing I want to say here is *that it is not sufficient to hear about these things and to think about them.* It is necessary for the women of Canada and of every other country to get together and *do their share* in breaking up the incidence of these diseases. It is for their own good, mind you, and it is also for the good of the male population. How are you going to do that I will leave for your own ingenious brains. I find that women have much better ways of doing a whole lot of things than men have. The idea of having women patrol the parks is a splendid thing. I do not suppose any man would have thought of it. On the other side of the line they have police matrons who do such work, and they get along splendidly. I will never forget a very fine old lady with gray hair who was police matron in the big station of the Great Northern Railway at Minneapolis. A huge lumberman came in, a big blustering fellow. It would take two or three men to handle him. He started whooping and jumping around. This little old lady tapped him on the shoulder, and said “come along” and he went. He knew, of course, if he touched one of her gray hairs he would be torn to pieces in a few minutes by the men who were there. He went right along and he was rather amused, he was grinning all the time. The police women are needed as one factor in this. The patrol women in Toronto are, of course, volunteers, but they do effective work.

What are the very definite things that we require to handle is the problem just now. I have told you that I can go out and take a case of chicken-pox and isolate it; chicken-pox is an innocent disease. There are very few deaths from chicken-pox. Occasionally a very young child or a very old person will die of it, but it usually does very little harm. But I as medical officer of health can isolate a case of chicken-pox. On the other hand I know a woman here in town who has been responsible for at least four of our soldiers being infected with gonorrhea. I am health officer, yet if I see that woman going along the street, I cannot do one thing. She could go on and infect one man after the other up to any number, and I could not do one single thing. If she had chicken-pox I could have her in quarantine at once. Syphilis and gonorrhea are not isolatable. The first thing we have to do is to make them isolatable. The second problem is “What is the medical officer of health going to do with these people after he gets them”? Suppose I can say to that woman, “You have an infectious disease, you must come along with me,” where am I going to put her. In jail? It is not a jailable offence. It is not a jailable offence to have scarlet fever or chicken-pox. If I put that woman in the hospital who is going to look after her? You cannot take care of a person like that without the ordinary nurse in training. They have no legal authority, they cannot restrain them. If she wants to escape, she will escape. We need local hospitals. We need places into which we can

put persons who will not obey the law and force them to remain isolated. The class of persons who spread this disease must be isolated, but how long? Not until they are cured, for that might be for the rest of their lives. No; until they are rendered non-infectious. Just exactly as in any other infectious disease, you do not isolate anybody any longer than the period during which they can damage others.

What is now the usual history of most of these people if they come for treatment at all? They come for treatment just until they do not feel sick any more. If they feel sick they want something to make them feel well. As soon as they get a little treatment and feel better, the treatment stops, and they are back at their old game again. Compulsory treatment is as necessary for cure, for their own good, as it is for the protection of the community from them.

If anyone wishes to bring up some point along the line upon which I have been speaking, I would be very glad to answer.

A MEMBER: What can we as women do to have these cases isolated; what pressure can we bring to bear on our Government:

DR. HILL: That is a splendid question, and I know that Governments are extremely sensitive to the ideas of women in the matter. Governments hesitate to move because they are afraid they are going to offend the women. There could be nothing better than that this meeting, right now, should pass a resolution addressed to our Provincial Government requesting that steps be taken to make these diseases isolatable.

A MEMBER: Could these women be punished with a cat-o'-nine-tails instead of being isolated. If they were taken to the corner of the square and given so many lashes that would put an end to that sort of thing, and if these women are going to bring down our splendid men, I think that is the proper thing to do with them.

A MEMBER: Would it not make quite a difference in treating this disease if our feeble-minded girls were put in institutions and taught while young. Don't you think a great deal of this is caused by the feeble-minded?

DR. HILL: Absolutely; I am glad that you mentioned that point. Nearly eighty per cent. of the professionals are feeble-minded. But there are some of them that are not feeble-minded, and these are the ones that should get the cat-o'-nine-tails.

DR. HILL: We have preached morals for thousands of years. We are worse to-day than ever before in the history of mankind. We must have some new method to get rid of these diseases; they are sapping the whole foundation of the race. Through the feeble-minded is a more important way of getting at it. Feeble-minded girls are often very pretty, and they may meet a young man who is not as particular as he ought to be.

A MEMBER: Miss Jane Addams, of Chicago, was instrumental in having a home built in which to detain these people who were loose in their morals through circumstances, and it was found that there was not one of the women who passed through that home who was not feeble-minded. Now these women, or girls, are detained in an institution until they come to years of discretion. I think that if something of that kind could be done here it would have a good effect.

A MEMBER: It is possible to recognize chicken-pox and measles; how would you recognize this disease?

DR. HILL: It would not be possible for the ordinary person to recognize either of the venereal diseases, in ordinary life.

A MEMBER: How are we to get hold of these people?

DR. HILL: That is up to the physicians and the medical officers of health. They know how to recognize them. I will tell you what is done in the army. Every week a special examination is made of every man. Of course you cannot look at a man's face and say whether or not he has the disease. Some day we will have examinations in civilian life of the same character.

A MEMBER: I cannot understand why a woman should be dealt with so severely and the men go free.

DR. HILL: We are not asking that this disease be made isolatable only when it occurs in women; we are asking that all cases be isolated. In the army, if a man has either one of these diseases he is immediately isolated until he is cured. People have said to me, "Why should these soldiers be allowed to use the Y.M.C.A. baths along with innocent civilian boys?" Now when the soldier is out on the street you know he has not either one of these diseases so far as it is humanly possible to detect them, for if he has one he is isolated. If anybody gets syphilis or gonorrhea at the Y.M.C.A. baths, you will have to blame it on the civilians and not on the soldiers. The army has not produced these diseases; the war has simply brought them to public view. Some day we will have everybody examined, and these diseases brought to light in civilian circles exactly as we do in the army.

How many cases of tuberculosis would be saved if the civilian population were examined as the army is examined? One of the greatest life savers in the army has been examinations for tuberculosis, and other infectious diseases. A few years ago tuberculosis was a problem we could not handle; everybody said we could do nothing. Now we have tuberculosis right in our grip, we know how to handle it, we have legislation for it and we have places where we can put people who are affected. It is exactly the same with venereal diseases; we know the general principles, we can work out the details, and we want to work it out in co-operation with you ladies so that we can get rid of them just as we are getting rid of tuberculosis.

A MEMBER: Can these diseases be determined by the examination in the school room?

DR. HILL: Certainly, but, of course, not by the ordinary examination.

BANQUET.

The City of London and the Women's Canadian Club tendered an afternoon tea, at Smallman & Ingram's dining room, to the ladies of the Institutes. The meeting was well attended, some 350 ladies sitting down to a delightful afternoon tea. Mrs. Donald MacLean performed the duties of Toast Mistress. The tables were beautifully decorated with chrysanthemums. His Worship Mayor Stevenson, Sir George Gibbons, Principal G. F. Rogers, Mrs. F. E. Leonard, Mrs. Edwards, and Mrs. D. C. Wilson occupied seats at the head table.

MAYOR STEVENSON in a few kindly words most heartily welcomed the delegates as guests of the City of London and the Women's Canadian Club. He then asked Mrs. McLean to introduce the programme of the afternoon.

MRS. DONALD McLEAN: The fact that we are tendered this delightful tea by his Worship the Mayor, as representing the city, goes to show that women are appreciated more than formerly. We extend to you a most hearty welcome.

“OUR MEN AT THE FRONT.”

Proposed by SIR GEORGE GIBBONS: I am exceedingly honoured in being asked to propose this toast. I am sure none could be proposed which would meet with more grateful response from every individual in this house. The men of our country, who were not trained for war in this peaceful land, have gone to Flanders and have made for themselves a name that will go down into history.

Replied to by MRS. D. C. WILSON, Parkhill: I can assure you that it gives me pleasure to be here this afternoon. You have done me the honor of coupling my name with the most important toast of the afternoon. It has been my lot to be associated with our gallant men in the old land. I have seen them form fours and march off to the battlefield with the spirit of this young country in their eyes. I have seen them return with the mud of Flanders on their clothes, with the lines of suffering on their faces. I have seen them in the hospitals and convalescent homes with the same spirit in their eyes. When I saw these things my pride of race grew and grew. I can appreciate the feelings that lie behind those splendid lines of our new anthem, “God Save Our Splendid Men.” A few years ago we were only Canadians, and in the minds of the men of the Old Land we were associated with Indians and bears, and we had no culture, and as soldiers we had no discipline; but to-day our men at the front have shown to the world that there is no better weapon of war in this great conflict than the Canadian Expeditionary Force. It has been said that the British troops have done more, but nothing has been said about it, and that our boys have received too much praise. I have spoken with war correspondents and with British officers, and they have told me that the Canadian soldiers excel in initiative and new ideas and prompt action. His individuality has been wonderful, with the result that when our boys get into a tight place, with the officers all gone, his very life fits him for just such an emergency. This has been shown a thousand times on the battle line, and to-day there is no force more hated and dreaded by the enemy on the Western front than the Canadians. In the years to come, when peace and prosperity have arisen out of the ashes of the war and strife, Canada will not be judged by the work of her politicians, not even by the work of the Women of Canada, not by the accumulated millions of the financiers of Canada, but Canada will be judged by the deeds that have been done by her gallant men at the front. Her monuments will not be in the civic squares, her monuments will be in the far-off fields of France and Flanders, at Vimy and Ypres and the Somme.

“OUR WOMEN’S ORGANIZATIONS AND WHAT THEY HAVE DONE.”

Proposed by PRINCIPAL G. F. ROGERS: This is the women’s century, there is no doubt about that. There are a few old-fashioned men who still say that woman’s place is home, but these men will soon be as extinct as the Dodo. Some men think that because God made woman out of man’s ribs she should merely be a *side* issue. (Laughter.) Women are coming into their own most magnificently. I do not suppose there is a better organized society in Canada than the Red Cross Society; I do not suppose there is any more effective organization than the Women’s Canadian Club; and, best of them all, is the Women’s Institutes of Ontario. Woman is rapidly and effectively taking her place, and when woman is thoroughly organized she will change the conditions of the world for the better.

“THE WOMEN'S CANADIAN CLUB.”

MRS. F. E. LEONARD: It gives me great pleasure on behalf of the Women's Canadian Club to greet and welcome you; we were indeed honoured by his Worship the Mayor and his Council in being asked to act as hostesses to this splendid gathering and assembly. We are deeply appreciative of the privilege.

Our Women's Canadian Club is so well known that it is hardly necessary for me to dilate upon its merits. Nevertheless, as its name implies, we stand for the broadest Canadianism in every sense of the term, and oh! how we are thrilled when we contemplate the vastness of our inheritance; and then try to picture what is in store for the future generations of our race, in the tremendous forces as yet undeveloped in our vast mountains, rocks, lakes, forests, plains; surely it behooves us to see that those about us catch the gleam of all that is ennobling to mankind; and so for those purposes the women of the Canadian Club are banded together to further every loyal and patriotic sentiment that makes for the welfare and uplift of our great nation. We women are now able to raise our voices as never before to advocate only what makes for good citizenship, and by example and precept strengthen the hands of those in authority and upon whose shoulders such grave responsibilities rest in this great struggle, helping them by our influence and example to righteously and unswervingly administer truth and justice. I do wish that our splendid women in adjacent districts could benefit by the educative opportunities our Canadian Club affords. We have a membership of many and a fine balance in the treasury. When the Byron Sanatorium was being planned for our invalided returned men we were able to vote \$500 towards a ward, and we are in a position to bring to our city the great men and women of the day to address our club.

The thanks of the club (the majority of whom, if indeed not all, are Red Cross workers) are due the Women's Institute and all patriotic organizations in our western peninsula for their immeasurable help in so many and varied channels for our brave men both in hospital and trenches. This war has brought women together as never hitherto dreamed of. We are almost borne off our feet by the real sacrifice many are making, but, even in the face of it all, we are convinced every nerve has to be strained to greater effort, and we all must be up and doing.

MRS. GODFREY PATTERSON conveyed Lady Beck's regrets at not being able to be present, and thanked the women of the Institutes for their patriotic work. “Our difficulties would have been intensified many times if we had not had your help. From the beginning the Institutes have been the strongest ally of the Red Cross. We have to thank you especially for your magnificent help towards the Byron Sanatorium. Out of 28 wards the Women's Institutes have furnished eight. That is a wonderful thing. (Applause.) Not only have you helped in the Red Cross, but you have given \$4,000 towards this sanatorium alone. I hope we will not grow weary in well doing.”

MRS. J. MULDER, of the Food Controller's Office, appealed to the delegates to assist in the conservation of food. It is women who create the public spirit throughout the country—will you take this message home and make it fashionable to save food, make it popular and create a sentiment in favour of food control, and then we will be successful.

MR. GEO. A. PUTNAM expressed the appreciation of the Department of Agriculture for the splendid work which the women of the Institute had done along patriotic lines, and the aggressive activities in some districts in work which will engage the attention of all the Institutes when the war is over. Your object lessons will be of great value in the days of reconstruction and readjustment.

EVENING SESSION, NOVEMBER 14th.

Dr. Annabel McEwen, London, presided.

THE STORY HOUR FOR CHILDREN.

MISS NICHOL, PARKHILL.

To-day everyone is familiar with the story hour for children that is held in most of the libraries in the larger cities. They are not so well known in the smaller towns. It has been said that the eighteenth century was distinguished by the discovery of man, but the glory of the nineteenth century was the discovery of woman, and I think you will say that the twentieth century belongs to the child; and surely there never was a time when it was more needed that attention should be given to the child. When you think of the brave boys that have gone from us, many of them never to return, we wonder who are going to take their places. The hope of our country lies in the child of to-day. Everything therefore that will help the child to find its proper place in the world's work is well worth while. We all know how children love stories. When we look back to our childhood we remember the stories that we never tired of hearing, and we realize now the impressions that they made upon us and the part they played in forming our character. The brightest hour in the day is when the mother gathers the children about her for the bed-time story.

In our story hour at Parkhill we have tried to have as great a variety as possible. The noble deeds of the Knights of the Round Table and the stories of the kings of the olden times will in many ways appeal to the child. If we want a child to become obedient, and some parents have difficulty in that line, and say to the child, "Now you must obey your parents," do you think this would have nearly as much effect as if we said, "Mother is going to tell a story about a bunny that was naughty and disobeyed his mother and what happened to him." Many of you are familiar with the *American Mother's Magazine*, in it there are excellent stories for mothers to tell their children. Mrs. Williams has charge of this department, and mothers may write her telling her of their difficulties and she will reply, giving the story that will be suitable to tell her child. If a story is told in the right way a child will take a lesson from it. One little boy, who heard the story of Joseph and his coat of many colours, put his arm around his little brother, and said: "I would never, never be so mean to my little brother."

Our story hour is held each Saturday afternoon at four o'clock in the rest-room of the library. We devote the first half-hour to telling stories to the children. We are very fortunate in having the use of the piano, and we are permitted to sing songs, as we are in the basement and do not disturb others. The children enter into it very heartily. Some children do not get as many opportunities for singing as they might, and this is quite a help. We also have games, and one thing that interests the children in the spring time is telling them stories about birds. Then we ask the children to bring stories themselves, and it is quite interesting to see the trouble they will go to to get a good story, and the children will go to a great deal of trouble to find out all they can about a certain bird and bring the information to the class. This makes the work very interesting, both to

the children and to the leader of the class. If the child life is neglected the nation is sure to suffer. Some years ago England had to pay the penalty for neglecting play life. When the Boer War broke out they were compelled to reject every second man because he was not up to the required physical standard. Play develops courage and endurance, play is also a preparation for life. This work can be done in rural schools, and possibly in the home where someone gathers the children together for an hour perhaps once a week and tells them stories. There are a number of books published nowadays for the children.

I am sure that any of you who start the story hour for the children will feel that you are amply repaid by the keen delight that the children will take in it. (Applause.)

MRS. (DR.) WILSON, Parkhill, reported upon the organization and work of the County of Middlesex Women's Institute and Red Cross Canning Centre. (See p. 150.)

WHY CONSERVE?

DR. ANNIE BACKUS, AYLMER.

From time to time there comes an occasion when words that have lain long idle or semi-idle in the dictionary are brought out and become of frequent use. You hear them on the street corners and in the drawing-room—everywhere. Now two of these words are in use to-day—"Conscription" and "Conservation," and the occasion for the frequent use of each is the same—the long lasting war in Europe. Of late years *conservation* has become a national subject. You find along that wonderful river, the Nile, engineers engaged in damming its waters in order that they may fertilize and irrigate the valley of that marvellous river. In 1909 our Dominion appointed a Commission of Conservation. That committee is made up of twenty members, non-partisan, specialists, selected from different parts of the Dominion, and the business of that Commission is to conserve the wealth of this wonderful country in which we live—our forests, our lands, our water ways and water powers, our mines and minerals, our fisheries, our fur-bearing animals; in fact all the wealth of this country, not only for our own use, but in order that those who follow may find this world a better place in which to live because of the wisdom of our present-day statesmen.

Farmers have been asked to conserve the land. In the Far East, once rich agricultural districts, there are thousands and thousands of acres of land which are barren because conservation of the land or care of the land was unknown. In order that this may not occur here, our farmers are asked to conserve the land. Our lumbermen are asked to conserve the forests, our miners are asked to conserve the minerals, fishermen asked to conserve the fish, hunters asked to conserve our game, trappers asked to conserve the fur-bearing animals, and the women of this country have been asked to conserve food.

How have we responded to this request? Ladies, I do not know of anything in my whole life that has caused me as much mortification as the attitude of certain women on this subject of conservation of food. We have been asked to do so little, and some of us have refused to do that. They have flown up in the air, abused Mr. Hanna, abused the Government, abused the British Government. You

would think to hear some of these women talk that the men who have been selected and sent to our Government buildings to take care of the business of Canada had not a grain of common sense, had not a grain of common decency or patriotism. You would think they were a lot of rascals. "Sign a food pledge card? No, not until every brewery and distillery was closed here and in England." Now, I hold no brief for distillers or brewers, but I do hold a brief for the women of Canada that they shall not be exploited to carry out the wishes of biased fanatics and prejudiced politicians.

Let us study this question about the waste of grain about which we hear so much. I am glad, and we all rejoice, and we will be rejoiced at prohibition, and at the ceasing of the manufacture of intoxicating drinks, but let us be reasonable, and let us be sane, and before we take an attitude, let us be sure that we are justified in doing it.

Now, in these breweries and distilleries how much grain is wasted? In the first place, remember no wheat or very little wheat has ever been used in the distilling of whiskey, because it does not make very good whiskey. (Laughter.) So it has not been used in large quantities, but there has been a certain amount of wheat used, although for some time past there has not been a grain of wheat used in any form of distillation or brewing, and to use such is a criminal offence liable to a heavy penalty.

Now this leaves us with two grains: rye in the distillation of whiskey and alcohol, and barley in the brewing of yeast, malt, beer and stout. What about rye? Rye is a grain which is grown upon our poor land. It is not of very great food value. You dare not feed it in any quantity to your stock. If you fed it to your chickens you would kill them. (Laughter.) It has been found in parts of this country where, owing to famine, rye bread has been used for months consecutively, that it set up such disorganization in the blood of the inhabitants of the country that gangrene became prevalent and premature birth common. You know there is a drug medicine called "Ergot," which is manufactured from rye, and some of you know how it is used. Now rye is used in the distillation of whiskey or alcohol, particularly in the distillation of pure (94 per cent.), or what is known as absolute alcohol—the alcohol that is used in the manufacture of the finest sherries. And let me tell you, after rye has been used in the manufacture of these substances, it is almost as good a food as it was before, and it is used by stock men and mixed with other feed for the fattening of stock. So much for the waste of rye.

Now barley. Barley is a good food. It is a grain that is grown upon our strong land, and it is a very valuable food for stock and for human beings. We get from the manufacture of barley in the breweries, yeast. That is one of the last products you could hope to do without—compressed yeast or Royal Yeast Cakes. It is used in the manufacture of malt, one of our most valued foods, particularly in the feeding of delicate children and invalids. It is used by the hundreds of thousands of gallons in the hospitals in Europe for the soldiers. Then we have beer, which some of you know about. It is slightly intoxicating, but you have to take a large quantity of it before you get that kick that Jack London tells about. Stout—we use a great deal of stout in hospitals and in the practice of medicine, as a tonic.

Barley after it has passed through the press in the breweries is still a good food—the most valuable food in the fattening of stock, and is used by stockmen for that purpose.

You see the actual waste of grain has not been so great that we should have been enraged about it. I sometimes question if there is not as much good grain wasted in talcum powder and cosmetics as there is in the brewing of whiskey. And I tell you this, women, that the painted, powdered, scented lady is a greater menace to public health and public morals than any alcohol floating about.

Another thing you hear about is the awful waste of sugar—28,000,000 lbs. of sugar used in the manufacture of alcohol. Whoever got that thing up, started it for nothing if it was not with the malicious intent of causing trouble. There is very little sugar used in the manufacture of alcohol. It would not pay. When you say a thing won't pay, that will tell you how much there is used, but there is some refuse product in the manufacture of sugar, and of that they make alcohol, but there is no genuine sugar used.

From time to time women will say to me—we doctors get so that people confide in us and come to us with their troubles—"Now, Dr. Backus, don't you think it is unkind to ask the women to do without things and economize; don't you think the men ought to stop the tobacco?" They think they ought to stop growing tobacco on the land. Well, ladies, as long as we see women trotting around the streets with high heels and high-priced shoes, with trinkets of more or less value hanging from the flesh of their ears, with hats on their heads, the price of any one of which would keep a man in tobacco for a year, for goodness' sake let us hold our tongue. (Applause.)

But I can tell you this, tobacco is not all bad. Anyone who has lived in a house with a nervous man can tell you that. I have known some men who were really very companionable as long as the old briar pipe was around, but as soon as that was gone he was unbearable. Now, men are bound to be doing things, and I think we had better bear this evil that we know than fly to others that we know not of.

Perhaps you wonder what that has to do with conservation. Why should we conserve? Why should we women of Canada conserve? We have heard ladies say, "Now, Mr. Hanna's ideas of conservation are not my ideas." I have no doubt she has very valuable ideas that Mr. Hanna would like to get, but I have never been able to get it definite enough in order to send it to this gentleman. We should, in the first place, conserve food because we are asked to conserve it by the man who is Food Controller of the country in which we live. I do not care whether we live in England next year or here, if the Food Controller suggests certain methods of conservation, it should be our business to follow up these methods, even if we have a better one up our sleeves. A good soldier does not, as a rule, stand around and argue, but generally goes off and does what he is told.

When these reports came out in the paper and I read that the women said they would not do this because somebody else did not do that, I thought, won't that be jolly nice reading for the people in Germany? They will get it and read it and know that the women of Canada won't conserve food because the men drink beer—which they do not. Won't that be jolly nice reading for them, and cannot you hear the Germans say, "When we get over in Canada, they will conserve food if we ask them to?"

There is so very little that we have been asked to do on this subject of conservation! What we have been requested to do seems such a small thing, and when we look at it we say, "The little bit I save, what would that amount to?" It would not amount to anything, but the little bit that all of us would save would amount to a great deal. Now, listen. Last year there was a shortage of wheat

in the United States and Canada of 108,000,000 bushels, and some ingenious mathematician figured how that could be made up, and he figured that if every man, woman, and child in the United States would conserve two ounces of white bread per day that would make up the 100,000,000 bushels shortage, and if every man, woman, and child in Canada would conserve two ounces of white bread per day or fourteen ounces per week, that would make up the 8,000,000 bushels shortage. And by that sacrifice, if it would be a sacrifice, by that little saving, all the 108,000,000 bushels of wheat shortage would be made up. It is the small saving multiplied. It is co-operation.

Another thing I want to speak about is the atmosphere that is produced by all working together. I can imagine the work done in Parkhill in the carrying on of their canning centre, not only was it a help to those at the front, but an assistance to the spirit, the morale of the people in Parkhill; and so if we all work together, laying aside all prejudice, side issues and nonsense, and hang up in the windows the cards which designate that we are willing and glad to do what we can, that will create in our midst a morale which will be of great value, and when the boys at the front know and read of the doings of the women of Canada, what an influence that must have upon their morale. Remember that all the greatest generals have stated that the morale is as important as the equipment, and that an army with a poor equipment and a good morale can thresh an army with a good equipment and poor morale. (Applause.) We must keep up the morale of the boys at the front, and the only way to do it is to feed them. You cannot have a good morale if you have not enough to eat. We have certain evidence that the morale of the enemy is slightly altered. It will depend upon us individually how well we maintain the morale of our army at the front.

There are three things we have been asked to conserve: bacon, wheat, and beef. We are asked to conserve these particularly because they are the best material for shipping. They are concentrated foods and take up small space in the ships. Remember what space in the ships means to-day. Remember the danger of every merchant ship that leaves the harbor. It has been said that one ship out of every sixteen is sunk by the submarines. Think of the courage of the men who sail; think of the courage of those mariners to-day. It requires more courage to-day than ever before, because until recently the sailors had the chance to escape with their lives, but now by this new and happy suggestion of destroying ships, sailors and all, why the danger is even greater.

Mr. Hoover, in an article in the September number of the *Geographical Magazine*, writes concerning this subject of conservation. He says, "The logical and sensible first step in adapting our supplies to allied needs is to substitute on our own tables corn, potatoes, vegetables, fish and poultry for those staples we wished to export." Then he goes on to speak of the wheat situation: "For us to increase the exports of wheat from 80,000,000 of bushels to 200,000,000 bushels means that we must make a saving of about 20 per cent. in our wheat consumption. That is not a great burden for our people to bear. This means an average saving of one pound of flour per person per week out of 35 pounds consumption," and he adds, "It is not asking much of our people that they should substitute other cereals to that extent."

We are asked from time to time why they don't send these other grains. It is because they are not good shippers. Corn moulds, and all these others are too delicate, and are not practical for shipping. That leaves us with only these three things which we should deny ourselves, and I think that when we really under-

stand the situation, there are very few who will not sign these pledge cards, who will not join in this campaign of service, even if Mr. Hanna and Mr. Hoover do not look at it out of the same eyes as you do.

If we unite and put ourselves heartily into this work of conservation, we can make up the shortage. We should get the idea that we are actually at war, and that at the front the boys are in danger of going without a square meal simply because we are not interested enough to deny ourselves a little thing. We can put these into the open market for exportation, and we can get as fat as seals on what is left for us to eat. Our children will be healthier and we will be happier because we won't have a grouch. A grouch is the worst thing we can get at this time—the criticism of our Government and people. We women don't want to make the mistake that the men have made in the past of getting hung on to some party. (Applause.) Let us be big enough to face the question regardless of party. We have got to win the war; I do not care which party wins the war. If anybody has a proposition that will win the war that is the man I am going to hang on to. (Applause.) I do not care whether his name is Tory or Grit, I am going to cling to that man because we have got to win the war, and that is the first thing to think of.

This is not the time to do housecleaning. A good housekeeper as a rule does not clean house when she has the threshers. We have the threshers, and it depends on our conduct whether we are threshed or thrash.

After this war is over, let us stand together. Let us stand together now; work together, win this war, and after it is over and we do win, then we can get after this soiled old world and clean it up, because we will have the power of the ballot in our hands then. That old snake in the Garden of Eden that made such trouble is still alive, but after this war and after we get the vote—well, we will give that old fellow a chase for his life.

THE VICTORY LOAN.

SIR GEO. GIBBONS, LONDON.

As Chairman of the Victory Loan Campaign Committee of the City of London and County of Middlesex, I will have just a few words to say to you with regard to that important service. In one way it is a matter of service; the men in the trenches are doing their part; the nurses and doctors in the hospitals are doing their part; the men who are making munitions are doing a part; the farmers who are raising crops are doing a part, but underlying and necessary for all these purposes and for each and every one of them is the question of money. Without money the men cannot be kept in the front line; without money the hospitals cannot be equipped, the nurses and medical attendants provided; without money this war would be a failure. It is necessary that money should be provided that the war may be carried on to a successful finish.

That money is essential is evident to everyone. It has been the habit of Canada when it wanted money to go to the old motherland and borrow there, and the fact that the motherland was able in the old days to lend us money at a low rate of interest enabled us to develop our country, particularly our great North-West, to build our railways and make possible the progress which this country has made. That market is closed to us now. England in this fearful struggle has been financing all her allies. She has been straining every nerve financially as well as physically. That market we can no longer appeal to. Until

the United States got into this war, Canada was able to borrow in the New York market, but now that the United States is in this 'struggle, she has to arrange her own Liberty Loan, and that market, too, is closed to our demands.

As I have said at other meetings, this is not an unmixed evil. When people go out and get money from somebody else easily, they are inclined to be wasteful and extravagant, and it is very essential that people should be thrown upon their own resources. We have been thrown upon ours. There is no escaping that issue now. Money has to be provided, and you have got to provide it. There is no place else to go. Your country demands it. As a matter of patriotic duty and as a matter of business it is necessary that the money that is absolutely essential to carry out this unfortunate war shall be provided. This is just a part of your patriotism to see that that work is done, but fortunately, it is good business as well.

When we appeal in this city for patriotic aid or Red Cross funds, the response is magnificent, and I am glad to add my tribute, because I am told by the ladies of the Red Cross that the members of this Association have done magnificent work in providing supplies for the Red Cross, and I add my thanks to those you received this afternoon for this wonderful work you have done, but the work has got to go on. The money has to be provided, and Canada has to provide it.

Now, besides being a good investment, it is on the best security in the world, because if your own country is not a good security you have not got any. If your own country cannot pay these bonds, then no money that you have is of any value; your farm is no good; your house—everything is gone. You have the safest security possible when you lend to your own country. It is a good investment.

Then I appeal to you again for patriotic reasons. For the love of country get behind this necessary part of the service that we must render in these trying times. Subscribe to the bonds yourself and be the means of getting others to contribute, and take this best security in the world to save money, not to lay up treasure upon earth but because by doing that you will be doing at this particular juncture the best service you can for your native land and the Empire of which you are a part. (Applause.)

During the evening the Elgar Ladies' Quartette rendered several selections, and delighted the audience very much indeed.

MORNING SESSION, NOVEMBER 15th.

REPORT OF THE JERICHO WOMEN'S INSTITUTE.

At the regular meeting in October of last year, two members were appointed to do Red Cross buying throughout the year. The material purchased from then until the end of May amounted to \$83.25.

Seven dollars and sixty-nine cents was given to the East Lambton Hospital Cct Fund and \$25 was given to the Byron Sanitorium, London, to assist in furnishing a ward.

Money was raised through the making of an autograph quilt which brought in \$50; through a guessing contest; a fish pond; the sale of a number of articles donated by the members; through the serving of 5-cent teas; and the holding of a strawberry festival which brought in \$61 clear.

Besides the Red Cross work, the branch took a keen interest in the school fair day, serving dinner and tea.

ADDRESS.

MRS. J. E. BRETHOUR, BURFORD.

One of the chief things I wish to bring up this morning has not been touched upon, and that is on the qualifications of officers, both branch and district. There is a great peril threatening our Institute work if the women who have the qualification of leadership do not feel that it is a talent to be used. I know that they shrink from it. You are nearly all officers here, past or present, and we all know it is much easier to slip into our seat perhaps five or ten minutes late, than it is to think about the programme and keep everything in good running order.

There are two classes of women who make very poor officers: the one who takes herself too seriously, who lays awake the night before the meeting and wonders if this one or that one is going to help her out, and if the other one is going to turn up. The meeting is just going to be something awful for her and everybody else. Those women are too hard on themselves, and we do not want that kind in office. Then, on the other hand, there is the happy-go-lucky woman. She is perfectly lovely in real life; you can go to her home and have a lovely time, but she does not think about the meeting until about an hour before it should commence, and then consoles herself that Mrs. So-and-so will help her out. Those women are to be avoided.

The successful Institute woman, whether she be officer or member must take the Institute work as part of her life. The woman who never thinks of the meetings and what is going to benefit her branch, or what is going to do good in her particular district, and thinks that all she has to do is to put on her best clothes and look her nicest, has certainly mistaken her calling, and the ladies that put that sort of woman in office do not know what they are about.

But there is a great peril threatening the Institutes, and I think it is because the members have become more wide-awake and up-to-date, and perhaps a little too critical about us.

I remember when a young girl going with a middle-aged couple to a play. It was awful. Even the love scenes were awful. And the husband remarked, "I really made love better than that myself." I said, "But you did not have such a large audience." That is just the way it is with the ladies who sit and criticize the officers. It is difficult to face the audience.

The officer must make her work a part of her life and we get just about as much out of life as we put in. If I took Institute work out of my life, I do not know what my life would be like. We cannot grow old in the Women's Institutes. There are no old ladies any more. (Applause.)

I really think I have a very fine working district in South Brant of which I am District President, and I do not think it is due to anything on my part. The women are such a surprise to me, that I sometimes go home from a meeting quite humbled. I really wonder why they chose me to be their leader. I hope you won't think, because I am giving you my ideals of an officer, that I think I am one; but we must have our ideals. It is also better to be a poor original than an imitation, and we must each work out our own problems for ourselves.

South Brant is very much handicapped in regard to railway facilities, but my home is in the centre, and I conceived the idea of having a luncheon at my house of the Branch Presidents and Secretaries to discuss plans, and the better organization of the Red Cross work. I thought it was rather a pity, too, to let Red

Cross work occupy all the time. I knew the Brantford Hospital was in great need, and we decided to sandwich a little bit of hospital work into our district work. Representatives of the Brantford Patriotic Society, Red Cross Society and Soldiers' Aid were also at this little luncheon, and they gave us a little talk and told us what they were doing and solicited our aid. We decided to furnish a ward in our own hospital. That was a gigantic work, but we accomplished it in two years.

In these busy times, it is hard to collect one's thoughts at the proper moment. We often have wonderful thoughts while washing the dishes or sweeping the floor, but when in the afternoon we sit down to write them out, where are all those beautiful thoughts? I have devised the plan of having a little pad and pencil in the kitchen, and as these thoughts gather in my mind, I write them down. Then when you sit down to write your paper, there it is almost all before you. We can also get a great deal of help from newspapers and magazines on almost any subject.

Another thing we must do is to enlist the men. The most successful Institute in my district has meetings in the winter months with the Farmers' Club, and it is wonderful what they do and how the men help them along. I never could have done anything in the early days if I had not had a good-hearted husband at my back.

A district officer should be looked upon more in the light of a dear old grandmother than an interfering mother-in-law. But all these things must be learned by experience, and we must not listen to the criticism of the other women at all.

I am quite sure there are many other district presidents in the room, and I would like very much that my little talk should be the beginning of a good discussion. I thank you.

ADDRESS.

A. R. G. SMITH, PRESIDENT WATERLOO BOARD OF AGRICULTURE, NEW HAMBURG.

I wish to congratulate you upon the very excellent work that you have carried on during the past year, and I think that especially worthy of mention is the work of your Superintendent. Thirty thousand ladies have to be handled very carefully.

I would like to refer for a few moments to some observations I have made in connection with co-operative work on the part of the Farmers' Clubs and the Women's Institutes in this Province. A number of years ago I was called upon to go to the County of Wentworth. It was the first time I had been away from home on Institute work, and it was a solemn occasion. In the County of Wentworth, some splendid work was carried on by the Women's Institutes and Farmers' Clubs in connection with the care of neglected cemeteries. I think some more splendid work may be done by the co-operation of Farmers' Clubs and Women's Institutes in beautifying the cemeteries of this Province.

In the County of Bruce a few years ago, suggestions were made by some of the Institute speakers regarding the improvement of rural schools. Waterloo County has taken that matter up probably before any other county. We carry on a competition in the schools, and the highest scoring school in each township receives a beautiful shield as a reward for their efforts. The Counties of Waterloo

and Bruce have carried that out successfully, with the assistance of the District Representatives, the Farmers' Clubs and the Women's Institutes.

I have sometimes been criticized for talking about my own county, but I would like to draw your attention to the work carried out by the Farmers' Clubs and Women's Institutes at Ayr. They were both organized about ten years, and every year they have a social evening, at which the Farmers' Club President presides, and they have public men to address them. Dr. Creelman, Dr. Macdonald and other celebrities associated themselves with that co-operative organization, and the Ayr Farmers' Club and Women's Institute developed what we hope to develop all through this Province, that community spirit which is essential to the welfare of the nations. About 100 men have left the rural district of Ayr for the battle-fields of Flanders, and last week the Farmers' Clubs and Women's Institutes were sending parcels to those brave fellows at the front. They have also taken up the work of the horticultural shows. If there is one thing needed more than another in our rural districts it is the re-organization of the Agricultural Societies. We wish to develop the esthetic tastes of our rural people. The Village of Ayr has a horticultural show at which thousands attend.

After the war is over, there will be a great deal of reconstruction in the Province of Ontario. You will likely see a greater development in Ontario than in any of the other Provinces of Canada. We have a wonderful Province, and yet when we consider that Germany with an area less than that of Ontario has a population of 70,000,000 people, while Ontario has only 2,500,000, we have a great deal to accomplish before we have reached the limit of our possibilities.

We therefore appeal to the Women's Institutes to associate themselves with the Farmers' Organizations to see that the many problems that are going to confront us and are confronting us at the present time will be solved. And let me ask the ladies who are here—and I think most of you have husbands—to say just a word of encouragement to your husbands when you go home. We husbands are peculiar creatures. You remember in the Cotter's Saturday Night when that grand old Scotchman returned home weary and discouraged, he was greeted with his wife's smile, and forgot all his cares. Let me ask you ladies to greet your husbands with a smile, and remember that one man on 100 acres of land has a great many difficulties to face. It is very difficult for us to carry out our plans, and we get despondent, but if you will encourage us, we will do our level best. We cannot go to the front to fight, but we can work, work, work, and on behalf of the farmers of Ontario let me say we will give our last dollar, our last loaf of bread, and give ourselves rather than let our flag be trampled in the dust.

REPORT OF RESOLUTIONS COMMITTEE.

Moved by MISS ANNA J. COURTS, Thamesville, seconded by DR. ANNIE BACKUS, Aylmer:—

Whereas the prevalence of venereal diseases, not only in military but also in civilian life, has been shown to be as general as to be a grave menace to society.

Be it resolved that we, the Women's Institutes of Western Ontario, assembled in convention at London, desire to urge upon our Provincial Government:—

1. That it give wide publicity to the extent of these diseases in order that our Province may know what the conditions are.

6 W.I. (i)

2. That, whereas eighty per cent. of professional prostitutes are known to be feeble-minded, and medical authorities have shown that the problems of feeble-mindedness and immorality are closely interwoven, action be taken to segregate all feeble-minded children and adults, and that an appropriation be made for the extra buildings and equipment required for segregation.

3. That measures be taken to make venereal diseases isolatable, as are all other contagious diseases.

And be it further resolved that we, the members of the Women's Institutes of Western Ontario, pledge ourselves, both as individuals and as societies;

1. To make earnest endeavor to acquaint ourselves with the moral conditions in our own communities.

2. To let no false modesty, or cowardice, hinder us from taking locally whatever stand investigation shows to be advisable.

And, finally, be it resolved that we earnestly believe that the moral education of our youth, and the provision of wholesome recreation and activity for our youth are the two things pre-eminently needed to stamp out the evil of immorality.

DR. ANNIE BACKUS, Aylmer: I have great pleasure in seconding that motion, but I regret the conditions which make it necessary. As a medical woman, perhaps I know more than most of you how much this means to the welfare of every locality in the Province of Ontario. Many of us are in perfect ignorance of the moral conditions surrounding us, and not only that, but we have been very glad to remain in that condition, and our educational system has hampered ignorance along those lines rather than enlightened it. There is not a sentence in that resolution that I do not wish to second. It is put up in just exactly the way I would desire to have it put up before you and the Government that we will ask to listen to it.

In the first place, the resolution speaks of the danger from the feeble-minded. Eighty per cent., or four out of five, of prostitutes are feeble-minded, and the care of the feeble-minded will be a great detriment to prostitution.

Another thing is, we should face these subjects. We should look at them, and there should be some form of education in the public schools whereby children may get a knowledge of these things. It is the hidden place, the dark corner, the secretiveness of it. I do not believe there is a more pure-minded—or rather a more moral—lot of people than the medical people. I went through the Medical School with medical men and women, and the very knowledge we received there prevents us looking at things as those ignorant of such matters look at them. It is knowing these things, knowing the danger, knowing the stupidity of anybody risking such trouble as venereal diseases.

Another thing which Captain Hill made very plain to us yesterday was that it is one of the most serious contagious diseases in the world, and yet physicians have no power to treat it as a contagious disease, and consequently the danger spreads—the menace is everywhere. If we can class this disease with the many contagious diseases, which are isolatable, it will require much less treatment. Dr. Hill spoke about how we are blotting out tuberculosis simply by isolation, and the time is coming when it will be a disgrace for disease to exist. It should be by this time a disgrace for children to be born unhealthy, but the time will come when that will be a condition, and it is by resolutions such as this that that will be brought about.

I hope we will have the co-operation of every woman in this hall, and I trust when the motion is put that you will all vote that we send this resolution

in to the Government. I have great pleasure in seconding the resolution. (Applause.)

(When the Chairman put the motion to the meeting it was carried unanimously and with great applause.)

MISS COURTS: The Resolutions Committee has four or five resolutions which it has decided not to submit. There was not one submitted with which we were not in sympathy, but our time is limited at the Convention, and we could not go into all the questions. Another reason was, we felt if we memorialized the Government on one question and showed we were heart and soul behind it, it would carry more weight than if we went with many petitions.

One resolution passed by the East Elgin Women's Institutes at their District Meeting and which has also been sent direct here, asked that the Women's Institutes memorialize the Government for the establishment of Juvenile and Women's Courts throughout the country. We think that is very necessary, but we did not feel the Institutes had taken the matter up sufficiently to put any force behind the resolution, and Mr. Putnam has asked me to announce that next year the work of the Resolutions Committee will be taken up a great deal earlier than this year, and each branch may discuss those things which they wish brought up at the Convention. We were all in favor of this resolution submitted by the East Elgin Institutes, but for these reasons we are not submitting it.

The following are the resolutions which we wish to submit:

1. That the Women's Institutes of Western Ontario wish to express our sense of the deep loss we have suffered in the death of Miss Hotson, of Parkhill. For many years Miss Hotson had been very active in our Institutes, and much of our work for child welfare has been possible only because of her wisdom, sympathy and perseverance in urging the claims of childhood. And we wish to express our sympathy with Miss Hotson's father, Dr. Hotson, of Parkhill, and her sister, Miss Aletha Hotson.

2. Be it resolved that we the Women's Institutes of Western Ontario wish to thank very heartily the officers of the Young Men's Christian Association for their courtesy in placing their capacious auditorium at our disposal for our meetings.

3. And be it resolved that we wish to express our gratitude to the London City Council, the Women's Canadian Club and the London Local Council of Women for their gracious hospitality to us, and also to the Elgar Women's Quartette for the delightful music they have furnished.

The resolutions were seconded by Mrs. Patterson of North Perth, and carried unanimously.

DISCUSSION ON COMMITTEE WORK FOR DISTRICT ORGANIZATIONS.

MRS. BRETHOUR, Burford: We have found a small meeting will accomplish more than a large meeting, and as I did not want to put the Department to too much expense in calling together the Presidents and Secretaries of the branches, we appointed a District Executive, consisting of an Honorary President, President, two Vice-Presidents, Secretary and Assistant Secretary. That was six, and it is not hard to get five of them together. We have a committee meeting of this Executive twice a year at which we make our plans, and we have a semi-annual business meeting of the representatives of all the branches, that is the President, Vice-President and Secretary. I always thought it well that the district should

undertake some work, as the branches have their own local work. A year ago I called a large meeting at which the different societies in Brantford were represented and we found it very helpful to discuss things with the city women. The meeting was held on the 1st of October, at 10-30 in the morning, and we had an attendance of between forty and fifty women. I felt very proud of the attendance, as that season is a very busy one for the country women, and they were all there on time.

We had a semi-annual committee meeting this fall. The committees have worked out so well that we felt it would be wise to have a Red Cross Committee of the district, so that the branches may work in unison. We appointed as convener of that committee a woman whose brother is at the front, and we had two representatives from each branch, making a committee of 21 interested women. We have also a Hospital Committee on the same lines, of which I am the convener, and we have extended the interest in our own hospital very much. I asked for a contribution of fruit for the nurses and friendless patients; the first year I had 30 jars, the next year 50, and this year 25 quarts of fruit, 25 pints, and over 100 pots of jelly. I would like to know if any other districts have tried committee work.

MRS. MEADE, Blenheim: In our district we give contributions of fruit to the Children's Aid, and then we have a visiting day in each branch on which we visit the schools, and look into the sanitary conditions surrounding the schools. From one of the schools I had a report the other day that they were planting trees in the yard on which the boys put their names. We are also looking after the moral condition of the schools.

This year our District Representative has co-operated with the Institute in the school fairs. We always serve a meal at which the little folks can be with father and mother and enjoy their hospitality.

I have placed in each school in Kent County an Honor Roll for the boys and girls to sign on the service of food, that they will not waste one thing. I have had the co-operation of the young teachers in the district, and they have given each boy and girl in a great many schools a little badge, and if they break their pledge the badge is taken away from them. I think we should place the children on the Honor Roll, because they should know we depend upon them as the future citizens of Canada. (Applause.)

DISCUSSION ON SCHOOL BOARDS AND SCHOOL CONDITIONS.

MRS. SPARKS: I would like to ask what is your idea in having women on the School Board. In our branch we tried to get a woman on the School Board, but those eligible would not run, and we would like very much to have some woman on the School Board if it is possible.

A MEMBER: Women are eligible on the School Board, and there have been women appointed in different cities on School Boards, but as there is usually only one, it is doubtful whether they do any good.

A MEMBER: I believe we can accomplish no good around the schools until women are placed on the Trustee Board. We have trustees that have grown old. They have no children going to school, and they don't care anything about the schools, and what are you going to do about that?

MRS. BRETHOUR: Put somebody else on.

A MEMBER: You cannot do that. In my opinion our school is very badly neglected, and for my part I would like to see a woman on every School Board.

A MEMBER: I would like to rise and second that. I was in a school room for years, and the country schools are not fit for children to go to. When I think of my children having to go to these schools, it is almost more than I can stand. The schools are not cleaned and the trustees do not seem to know that they are not cleaned, and they are not properly ventilated. I wish something would happen so that we could have ladies on our School Boards.

MRS. ANDERSON: I would like to ask what district that lady came from?

A MEMBER: I came from the Kingsmill and Mapleton District, around Aylmer.

MRS. ANDERSON: I have taught in a great many schools, and my children have attended country schools, though they are now in high school. Our inspectors are very particular about keeping the schools clean, and our teachers are, too, and if they are not kept clean, a new caretaker is appointed. If the inspector finds the school in an unsanitary condition, somebody hears about it.

A MEMBER from Kingsmill: In Dr. McEwen's report, out of 20 schools inspected, there were very few schools found clean—I have refused to teach in schools until they cleaned them.

A MEMBER: What we call cleanliness in our homes, is very seldom found in the schools. If we washed our kitchens the way the janitors wash the school floors, we would refuse to cook in them, and our children have to stay at school for their dinner. I give my boy a cup to drink out of, but he says all the other boys drink out of it, too. (Laughter.)

Another member testified that she considered the schools badly kept, and often the schools will be open after the Easter holidays without any cleaning having been done to them. And the trustees claim they could not get anybody to do it.

A delegate from the County of Kent said they had clean schools in their county. They had janitors for the schools, and there was not a prettier yard in the County of Kent than that which surrounded one of the schools. She claimed there was not a dirty school in Kent.

MRS. MEADE: I am from the County of Kent, but we have some dirty schools.

Another delegate claimed she had taught in the County of Kent for six months, and she never went into the school any morning but she could write her name on her desk in the dust. She had to do her own dusting.

MRS. MEADE backed up this statement. She had known teachers who had to do their own dusting, and in some schools the boys and girls are given the job of janitor, and she claimed it was very unhealthy for the children to have to breathe so much dust.

Another delegate stated that where her boy went to school it was full of smoke.

MISS ANNA J. COURTTS: I may say that work I have taken up is in connection with the school, but there is one point in that connection which has not been specially touched on. I had a talk with a number of teachers in Kent, and I asked them to tell something of what is happening in our schools. There was a great deal of discussion along the line of what has been said here. I would like to read a little of what I have jotted down.

The thing that impresses me in connection with it all is that people do not care. There is not a public sentiment with regard to our schools. People have not responsibility. Of course I am excluding the people here. How can we make them care? We decided to get women on our school board with their

brains and intelligence. I know they will antagonize men in a good many ways, but if we could get them on the Board, they will stir people up, and at the end of the year we may have a couple more whom we can run. The Chairman of our School Board made an effort to have a few new seats put in for the children, and they were going to turn him out, but he canvassed everybody at election time, and was returned, but was at the foot of the polls. People do not want to spend their money.

It is beyond all hope, in our educational propaganda, to get money for these purposes in the rural communities. We give to the world long hours of earnest toil, and the cities depend upon us, but they have things that we go without.

These are the things that impressed themselves upon me very insistently. The first step I am going to study is our public accounts. Find out just where the money in our public treasury goes. I am going to try to get the Women's Institutes to go into this investigation with me, for more health and intelligence, decent manhood and womanhood.

A musical number was then rendered very acceptably by Miss Loomis, of Sylvan.

DISCUSSION: A delegate asked Mrs. Brethour if the Red Cross Committee which she had formed included all the Institutes in her district.

MRS. BRETHOUR: All the branches were engaged in Red Cross work, but the district did not know upon what lines they were working, and decided a little co-operation would be a good thing. Two ladies were appointed from each branch, and with the convener, made a committee of 21 members. We find the committee is working out particularly well, especially in the purchasing of materials. Most of the Red Cross work in South Brant is done in the Women's Institutes except in the City of Brantford.

A MEMBER: I would like to tell you what is being done in our district. We just have two Women's Institutes in London Township, and early in the beginning of the war, we took up canvassing work. Consequently the men of the township look to the women to do these things now, and without any real planning, our township is now all organized for Red Cross work. Our Institutes look after their own districts, and the Red Cross Societies look after their districts, and in that way we accomplish a great deal. Our men appreciate the fact that the women did take hold of these things, so much that the council pay for all the Red Cross materials that the women will make up. Occasionally we are all called together, not only the Institutes but the whole township. Perhaps the reason our men are so generous is because our township clerk happens to be a woman, and she keeps everything in order.

DISCUSSION ON CO-OPERATION WITH FARMERS' CLUBS.

A DELEGATE: I would like to know how the Institutes can co-operate with the Farmers' Clubs?

MR. SMITH: It is necessary to have someone in every community who is willing to sacrifice just a little to be a leader. If you have a leader in a community—or three or four of them—you can accomplish everything you wish for your community. We have at the present time women in the Institutes who co-operate very heartily with the farmers' organizations.

The school house in the rural district is the proper social centre of the community, and should be cleaned at least once a month.

COMMITTEES.

The following committees were then named:

NOMINATIONS: MRS. GEO. EDWARDS, Komoka; MISS K. F. MCINTOSH, Parkhill; MRS. W. T. MEADE, R.R. No. 3, BLENHEIM. DR. ANNIE BACKUS, Aylmer, reported as follows:

PROVINCIAL: Bruce, Huron, Perth, Union, MRS. JAS. PATTERSON, Gadshill; Lambton and Middlesex, MRS. J. G. DAWES, Thedford; Elgin, Kent, and Essex, DR. ANNIE BACKUS, Aylmer.

CONVENTION: MRS. GEO. F. EDWARDS, Chairman; MRS. A. T. EDWARDS, representing the City of London; MISS K. F. MCINTOSH, Parkhill.

RESOLUTIONS: MISS A. J. COUTTS, Thamesville; MRS. C. M. DURNFORD, Hyde Park; MRS. W. T. MEADE, R. R. 3, Blenheim.

GENERAL ADVISORY: Composed of members of the Provincial Committee, Convention Committee, and MISS COUTTS, Chairman of the Resolutions Committee.

BABY WELFARE: MRS. J. MCNAUGHTON, R. R. No. 1, Clandeboye, MRS. (DR.) WILSON, Parkhill.

Moved by MRS. EDWARDS, seconded by MRS. MEADE, that the report be adopted. Carried.

CENTRAL ONTARIO CONVENTION

The Sixteenth Annual Convention of Ontario Women's Institutes was held in the New Central Technical School, Toronto, on the 21st, 22nd, and 23rd of November, 1917. The attendance at all the sessions of the three-day Convention was very large, and the earnestness and enthusiasm was most marked. There were some 700 Institute members in attendance, 450 being appointed delegates.

OPENING SESSION.—November 21.

MRS. J. A. MACDONALD, King, presiding.

After the singing of the "Institute Ode," the Rev. Dr. W. H. Hincks, Toronto, led in prayer.

ADDRESS OF WELCOME.

MRS. TORRINGTON, TORONTO.

The address of welcome, prepared by Mrs. Torrington, who was bereaved by the death of her husband, was read by Mrs. Rhys Fairbairn.

It is my pleasure, as Chairman of the Provincial Women's Auxiliary, to welcome to Toronto the Ontario Women's Institutes, in 16th Annual Convention assembled.

When your Institute met here five years ago it was then, as now, my privilege to greet you.

These five years have brought about stupendous changes in the world's history. In 1912 there was no world-war, nor were the faintest rumblings of the present storm audible to more than a prophetic few. To-day all the great nations of the world, and most of the smaller ones, are engaged in a life and death struggle on the battle-fields of Europe, Asia and Africa. The American continent alone has thus far escaped the actual clash of arms; but war, in its insidious form of peace propaganda, oft expressed discouragement and political cleavage, is in our midst, reaping its harvest just as truly as is the machine gun and bayonet across the water.

It is at this point that I would call your attention to the tremendous power which, during these years of warfare, has been placed in the hands of women. I refer to the Franchise. The women of five provinces have already been enfranchised, and the Federal Franchise, for which the National Council has twice petitioned the Government, is in part ours, to be followed later, so we are told, by a full Franchise. Women, give heed! It was claimed that woman would use her vote to make straight the crooked path and to cleanse the uncleanly in public life, that she would stand always for the higher ideals, irrespective of party politics. See to it that the hope and faith which the country places in woman's loyalty and woman's purity may be justified. In all matters of public import consider the question rather than the party propounding it; think nationally, not politically, and your earnestness and singleness of purpose may yet sway the partisan to a broader outlook and lead him to sink all personal feeling and all party prejudice

in the one great object of the hour—to win the war. Let us remember that it is a bigger, more responsible thing, to be a Canadian and a Briton, than to be either a Liberal or Conservative. As Lloyd George has so tersely expressed it, “There is but one party, and that is the nation.” Your power, as a controlling influence, is greater than you realize.

The Women's Institutes were well represented at the Women's Province-wide Convention, held in Toronto last July, and they have thrown themselves with customary enthusiasm into the work planned by the Government, of thrift and production. We are told by the Food Controller that the situation already is serious in the extreme, but that it is to a large extent controllable by the women. Each one of us must prevent waste in our homes and in every detail of our daily life, or not only Canada's, but the Allies' part in the war will be jeopardised. We must now help to feed Italy as well as France and England, and this can only be done through personal sacrifice.

During these long war years the Women's Institutes have been doing their part nobly in Red Cross and other war work, at the same time not neglecting that most important work of bettering social conditions in rural homes. You are bringing the women of the country districts together in a great sisterhood, broadening their outlook, enriching their lives, and so making your influence felt in the home, which is the very heart of the nation.

There are many after-the-war conditions to be studied, and woe to that country which is not already planning for the critical period of reconstruction. Women now occupy positions in the industrial world as never before. How is the readjustment to take place with the least possible disturbance of our economic conditions? We must plan very definitely for the returned soldier, and for the great flow of immigration which is sure to follow. The promotion of these interests and successful solution of these problems are more than ever in the hands of women.

I am grateful for this opportunity of congratulating you upon the splendid work you are undertaking, and I should like the closing words in my welcome to be words of stimulus and encouragement. As the earnestness of your effort so will be the measure of your reward.

REPLY TO ADDRESS OF WELCOME.

MRS. J. W. McMASTER, ORANGEVILLE.

How comfortable and how much at home we all feel in this building, and how keenly we all appreciate the kindly and gracious words of welcome to which we have just listened.

I wish to convey the hearty thanks of the delegates who are gathered here from all parts of Ontario for the warm-hearted way in which they have been welcomed to the capital city of our Province. The kindness and the evident sincerity of the greeting to which we have listened will remain as a pleasant memory in the days to come.

This has been a busy year for our Institutes, partly on account of the war and the ever-growing need for Red Cross and other activities of a patriotic nature. These activities have called for much time and work, but, after all, how small and even insignificant are the sacrifices we have made when compared with what the boys in the trenches have given for Canada. It is little that we can do even

when we do the most, and we would not be worthy of our place as Canadian women and Canadian mothers if we did not do that little willingly and whole-heartedly.

It is necessary that we should all be able to make palatable and nutritious foods. A properly fed stomach means a clearer, more active brain and increased capacity for work, whether mental or physical. Our boys and girls must have proper food if they are to develop into strong, healthy men and women, so that in learning to cook properly and to serve the kinds of food that will best develop the powers of mind and body, we are simply giving our motto, "For Home and Country," a practical interpretation. Living up to this motto implies the wise and intelligent discharges of our duties as wives and mothers, and places grave responsibilities upon the shoulders of all of us. After all, if we will only keep the first part of the motto uppermost in our work, there will not be much need to worry over the second part. If our home life is kept sweet, pure and wholesome, our national life will be free from grossness and corruption. Lofty ideals in the homes of the land give us lofty national ideals.

I have spoken of the sacrifices our Canadian boys are making on the blood-stained fields of France and Belgium. Proud are we of our brave lads who are so nobly upholding the cause of the Empire across the seas. We have just reason for pride, because their courage and devotion have brought undying glory to Canada. They have made sacrifices, but, while we mourn the loss of those who have fallen, we are comforted when we think of their training and the way they were fitted for the struggle of life in the homes from which they went forth to do battle for right and freedom.

In these years of war and its awful trials the old Canada that we knew and loved so well is passing away. In its place there is coming a new Canada, with world-wide relationships and responsibilities, and with a more direct outlook upon the world and world problems. What kind of nation will this Canada of the future be? What will be its ideals and aspirations? The answer depends in a large measure upon the women of our Institutes. If they remain true to the motto "For Home and Country," there will be no occasion to fear for the future. The influence of womankind was never so potent as to-day in shaping the destinies of nations. The very power of our influence places new responsibilities at our doors. That responsibility is ours, but the opportunity is also ours. Let us resolve to make the most of opportunity by accepting the responsibility with the resolution that, come what will, the homes and home life of Canada will be held inviolate against the insidious influence that would destroy their sweetness, purity, and sanctity.

FOOD CONSERVATION.

The Hon. W. J. Hanna gave an address covering the responsibilities and activities of the Food Control Office. His address, as well those given by Mrs. Muldrew, Domestic Science Specialist of the Food Control Board, are summarized in the following paper:

Before dealing with the work of Food Control, as it is being carried on in Canada, let me outline the events that led up to the appointment of a Controller in Canada, and the aims which he has set before him.

The war broke out in August when the 1914 crop was practically ready for harvest. The 1915 crop was abundant, so that up till the year 1916 no food shortage was experienced. The ranks of the world's workers in all kinds of pro-

ductive industry were being depleted in order to fill up the ranks of the army. Some thirty million workers were now in deadly combat, or in industries relating to destruction. Then came the crop shortage of 1916, world-wide and disastrous, and we began at once to draw upon our reserves of food. By the end of 1916 our food reserves were very largely exhausted. The submarine menace had made it impossible to protect all trade routes. To bring food from Australia required three times the time and meant the use of an unprotected route. As far as was humanly possible the Atlantic route was protected, so that foodstuffs for the Allies began to be looked for largely from the North American Continent. This made it imperative for Canada and the United States to feed the Allied nations and the fighting men. To meet the situation, the Americans appointed Mr. H. C. Hoover, Food Administrator in May, 1917. In Canada the Hon. W. J. Hanna was asked to take the office of Food Controller in June, 1917.

It is well to remember that the work of the Food Controller is directed primarily to meet the needs of our Allies and of our fighting men, and is carried on in close co-operation with the Food Administrations of Great Britain and the United States. Canada was asked to send beef, wheat and bacon in the largest quantities possible. These three commodities, which form a large part of our diet, are easily preserved, are concentrated foods, can be more easily shipped than most other products, and take less space than other commodities of the same food value. We had not in Canada sufficient wheat, beef and bacon for normal consumption and for export in the amounts required. If we were to be able to export as desired, we must reduce the amount consumed at home. It was estimated that throughout all of Canada wheat consumption must be reduced one-fourth and meat one-third.

In order to make sure that these commodities would be forthcoming in sufficient quantities, Mr. Hanna had an Order-in-Council passed on August 17th, restricting the use of beef and bacon to once a day on five days of the week, and requiring that on the other two days no beef or bacon be served. To this restriction of the consumption of meat was added a law that required some substitute for wheat flour bread to be served wherever white bread was served. This was made compulsory for public eating-places or for boarding-houses that served as many as twenty-five meals per day. It was made a matter of honour for private households, but they were asked, as a matter of patriotism, to go at least as far as the public eating places. Since this law has been in operation, we have statistics that prove beyond a doubt that the consumption of bacon, beef and wheat is reduced considerably, the reduction in meat going as high as fifty per cent. in many instances. Some have asked, "How has the Food Controller enforced this law?" I might just here point out that it is not the function of the Food Controller to enforce laws. When a law is passed on his recommendation, that law becomes part of the statutory law of Canada, and is enforced through the regular channels.

Many criticisms have been heard regarding this regulation. It has been asked, "Why were not private households placed under the same compulsion as public houses?" Anyone who is familiar with the enforcement of the law knows that it is much better to have no law at all than to have one that cannot be enforced. We have in Canada about one million, six hundred thousand private households. To attempt to enforce any law pertaining to food in these homes would necessitate a system of spying surpassing anything that Germany has been able to produce.

In order to secure the co-operation of the householders a system of pledge cards was introduced, the need for and the meaning of which has never been fully understood by the public. These cards asked the people to assist the Food Controller in his efforts to supply the armies and the Allied nations with food. Every effort to hinder the carrying out of this plan was put forth. A campaign of lying and slander was inaugurated, evidently through pro-German agencies, and many good citizens were deceived. The most extravagant statements were made as to the cost of the cards and of their distribution. The cards actually cost one-half cent each for printing, and not one cent was paid in the Dominion of Canada to any man, woman or child, for their distribution. It was wholly a voluntary service. The benefit from savings effected in less than one day would more than pay for all the cost for the Dominion of Canada.

On August 24th, 1917, an Order-in-Council was passed, on the recommendation of the Food Controller, forbidding the sale or purchase, until further notice, of canned vegetables. This embargo was ordered to stimulate the consumption of perishable fresh vegetables, and to increase the supply of canned goods for the coming season. The order was not applied where fresh vegetables were not obtainable, and it provided for permitting sale under a license. The restriction was removed on October 15th, and there is little doubt much saving, both of tinned and canned vegetables, was effected, and a decided increase in the use of fresh vegetables was reported.

It has been the aim of the Food Controller, in addition to supplying the armies and the civilian population of our Allies with food, to stabilize the prices of such staple foods as bread, milk, meat, cereals and vegetables. It is not an uncommon thing to hear people say that prices were high when the Food Controller was appointed, and that they are now higher than ever. The implication is that this is directly the fault of the Man in Charge of Foods. I think it is worth while to explain in detail the measures that have been taken to stabilize prices of important articles of food.

It has been stated that bread made from Canadian flour is cheaper in England than in Canada. This is not really correct. They have no bread in England to correspond to our white loaf. It is all war bread. The British Government buys the wheat and sells it to the millers at a loss. This enables the millers in turn to sell to the bakers at a price that permits the latter to put a loaf of war bread on the market at 5c. a pound. The Government thus loses the difference between the cost of the wheat and the cost to the millers. The difference amounts to a large sum, and must be paid back to the treasury, when the war is over, in taxes from the British ratepayer. Throughout the war, bread has been cheaper in Canada than in the United States.

In order to arrive at a basis upon which to fix the price of a loaf of bread, we in Canada began by regulating the price of wheat. The Grain Commission of Canada had set a price of \$2.21 per bushel for the 1917 crop. The next thing to do was to arrive at some arrangement in reference to the profit on the milling of wheat. After long and careful deliberation, the sum of 25c. on sufficient wheat to make a barrel of flour was set as the profit for millers, with no profit on the bran or shorts. This is a somewhat better arrangement than in the United States, where the millers are allowed 40c. per ton on the bran or shorts. We have at present a committee, which has been working for some time trying to arrive at some definite conclusion in reference to standardizing our bread in Canada. Their conclusion will be reached within a few days. When this is done, regula-

tions in regard to bakers will be made, and an Order-in-Council passed in regard to this matter.

One of the staple articles of food, which has really been more difficult of regulation than anything else, is milk. The difficulty in connection with this has been increased by the world scarcity of this commodity, owing to the loss of animals which have been killed for food in Europe, and the increase in the cost of production. The loss of labour, and the increased cost of fodder, together with the difficulty of putting milk on the market, owing to the same scarcity of labour in all departments, made it difficult for the supply of milk to be kept up. The Milk Committee of the Food Controller's Office brought in a report in which they placed as two contributing causes for the high cost,—overlapping delivery systems, and the breakage and loss of bottles. A milk dealer in one of our cities, who has handled milk for three years without any profit, told us that he had to give a cheque for \$113.00 for the loss of bottles alone in one year.

Buyers, representing our European Allies, came to the United States and Canada, and offered to give \$3.50 per hundred for milk for condensing and evaporation, where previous to this time the highest price had not been over \$2.25. This immediately made a great disturbance in the milk market, and there was a likelihood of milk going to an extraordinary price. This would have meant that the poorer people could not have afforded milk, and children would have been undernourished. A conference was held between the two Food Controllers, and an arrangement entered into whereby milk might be placed within the reach of the average consumer. Anyone desiring the report of the Milk Committee can secure a copy by applying to the Food Controller's Office.

The extremely high cost of meats, which furnish us largely with protein food, made it necessary for some other protein food to be supplied at a more reasonable rate. So the Food Controller made investigation, and undertook to assist the Canadian consumer to get fish, which would take the place of meat. Misunderstandings have arisen in reference to the relationship of the Food Controller to the fish business. The Food Controller does not handle fish, nor is he in the fish business. What he has done is to make it possible through arrangements with the railways, and through securing good shipping facilities, to have the Atlantic fish laid down as far west as Toronto in perfect condition. He has also assisted in arranging to supply a refrigerating fish case for any person willing to undertake the handling of fish. He has given the charge of arrangements of the Fish Special Express train to one of the most experienced Canadian shippers. It is the business of this man to know when the fish are placed in the cars, to have them iced twice between Nova Scotia and Toronto, and to make sure at all times that they are not side-tracked but make a continuous journey. He has also worked in co-operation with the Ontario Government towards securing fish from the inland waters, and has been able to assist the fish industry in many ways.

Great difficulty was encountered in the fish problem in the Middle West. Most of the fish supplied in the Middle West had found its way to American dealers, and the people had clamoured for an embargo to be placed on the export of fish. This, with Canada and the United States co-operating as they are in the furtherance of the war, would be impossible. So a conference of fishermen and dealers was held, including American dealers, to fix the price of fish. Schedules varied for the different lakes. Under the arrangement arrived at, fish are delivered to retailers at a guaranteed price to the fishermen, and the municipal authorities, who are working in accord with the aims of this department, are left to work out the retail price.

The Pacific trade in fish consisted mainly in the handling of salmon and halibut, though the coast abounds in excellent sea food. A conference was held of the members of the Deep Sea Fishermen's Union and Canadian and American dealers, and the result of this was that the Dominion Department of Fisheries was induced to subsidize the transportation of these less known varieties of fish to the extent of two-thirds of the cost. This will enable them to place good fresh fish in Winnipeg at about 10 cents per pound. Similar arrangements have been made on the United States side of the line.

If we could induce the Canadian people to double the supply consumed, we should increase the present estimated annual per capita consumption from 29 lbs. to 58 lbs. By doing this we should be able to release an amount of meat for export which would be enough to fill 23 vessels of 5,000 tons capacity.

The sugar situation has caused a great deal of difficulty. We get our supplies mostly through the United States. The supply of the United States comes largely from Cuba and from within its own borders. To realize the reason for the shortage in the United States, we must go back to the situation in Europe. England purchased the whole of the Java crop, 100,000 tons, loaded every pound on British bottoms, and not one ounce of it reached England. The United States then was asked to supply sugar to England. In order to do this, and because the Cuba crop was not ready for the United States, it was necessary for them to practise retrenchment. When the shortage came in the United States it was immediately felt in Canada. The Food Controller sent out a notice promptly saying that there was no real shortage of sugar if the people would not hoard. He pointed out that by saving from 25-30 per cent. there would be plenty of sugar to carry us through until the first of January, when the Cuban sugar would come on the market. As illustrating the value of the co-operation existing among the three controllers, the handling of the Cuban sugar situation deserves notice. Cuba found that she had the only sugar on the market, and immediately put the price up. With England, Canada and the United States standing as one unit, there was but one market. The buyers offered 57½c. per pound. Cuba refused to sell, but found that she depended upon the other countries for many of her other commodities of food, so that eventually she was compelled to come to reasonable terms.

By the first of January there will be an abundance of sugar available. There were in the United States harbours many ships belonging to neutral countries, and among them large tonnage belonging to Holland. Now Holland controls the Java crop, and the Java crop had been loaded into English ships. It was then arranged that, on condition that the United States allowed certain foodstuffs to go into Holland, Holland would permit the use of Dutch ships to carry sugar from Java to England.

With the increase in the price of meat, the poorer people were unable to secure enough to supply the required fats. The increased exportation of butter raised the price almost double its normal figure. The scarcity of fat was felt to be a very serious menace to the health of growing children, and indeed to the people of Canada generally. For this reason the importation and manufacture of oleomargarine were legalized. There has always been the fear that the butter market of Canada would be seriously interfered with if oleomargarine were introduced. But its introduction has been hedged about with carefully drafted regulations that will thoroughly protect the dairying industry. It will enter from the United States absolutely free of duty. The Dominion Agricultural Department has made final arrangements under which it may be licensed and placed on the market.

On the 2nd of November an Order-in-Council was passed providing that no grain of any kind, and no substance whatever that can be used for food, shall be used in Canada for the distillation of potable liquors. For violation of this law, there is a fine not exceeding \$5,000 or six months' imprisonment, or both.

Cereal foods are sold both in bulk and in package. Some of these, which are put up in small and attractive packages, cost from 25 per cent. to 50 per cent. more than the same cereals would cost if bought in bulk. To correct this abuse, an Order-in-Council was passed on October 19th, which limits the weight of packages to a minimum of twenty pounds, unless sold under license secured from the Food Controller. It stipulates that all such goods shall be sold by the pound or ton, and shall be net weight to the purchaser. The Order goes into effect on December 31st to wholesaler and manufacturer, and January 31st to the retailer.

In spite of statements to the contrary, repeated in the public press once and again, regarding comparison of prices in Canada and in the United States, the statement is constantly made that prices of all foods are lower in the United States than in Canada. We quote from the United States statistics regarding the following staple foods in the month of October, 1917, in Canada and the United States, and give the percentage cost in the United States as compared with Canadian prices:—

Commodity	Average Canadian Retail Prices	Average American Retail Prices	United States Price as Percent- ages of Canadian Prices
Potatoes $\frac{1}{2}$ bu.	\$1.736	\$2.712	156
Bread lb.	0.073	0.107	147
Roll'd Oats..... lb.	0.065	0.087	134
Fish..... lb.	0.181	0.230	127
Tomatoes can	0.136	0.168	124
Tea, black..... lb.	0.493	} 0.598	124
" green..... lb.	0.473		
Rice..... lb.	0.092	0.111	121
Cheese lb.	0.303	0.351	116
Beans lb.	0.167	0.190	114
Bacon lb.	0.428	0.479	112
Milk..... qt.	0.107	0.118	110
Pork lb.	0.340	0.370	109
Beef lb.	0.286	0.299	105
Flour $\frac{1}{8}$ bbl.	1.612	1.66	103
Butter lb.	0.502	0.508	101
Lard lb.	0.317	0.313	99
Sugar lb.	0.106	0.100	94
Eggs doz.	0.540	0.491	91
Corn can	0.195	0.178	91
Coffee lb.	0.404	0.312	77

From this you see that in October we had fourteen staple articles of food cheaper and five dearer.

When asked to conserve wheat by using corn products or other cereals than wheat, many make the reply that cornmeal is more expensive than wheat flour. This statement is true, for up to date we are able to buy only last year's corn, and in 1916 this commodity reached an unprecedented price; but the new crop should reach the market by the beginning of the year, when the price will be somewhat lower. Experiments have been made by large bakers using certain percentages of rye flour, barley flour, rolled oats, bran and corn flour along with wheat flour to make a loaf of bread that will be an acceptable bread and save the wheat flour.

When the results are known, and the bakers have reached a decision, we hope to have a baker's standard loaf of bread, which will go far towards saving wheat flour. It is difficult to secure rye flour in large quantities, because Canada raises very little rye.

Quite recently, through the advice of the Food Controller, important legislation has been passed regarding packers. Many of you may be familiar with the regulations from the local papers, but perhaps it might do no harm to review what has been done. A maximum of 2 per cent. profit on the turnover has been placed. This maximum will be taken by the packer where the profit amounts to 7 per cent. on the investment. If the amount exceeds 7 per cent., from that up to 15 per cent. of profit, one-half returns to the Government, and all over 15 per cent.

The establishment of a Licensing Export and Import Board in the office of the Food Controller is the greatest step yet made towards the control of foodstuffs, both as to disposition and to price. This Board was established in November, following the action of the United States, when they placed an embargo on their principal foodstuffs, which necessitated a similar action on the part of Canada. All wholesale dealers in foodstuffs will be required to register and to secure a license, and all dealers or handlers who do not conduct their business on a fair basis will have their licenses subject to suspension or cancellation, but the legitimate dealer need have no fear of hardship.

In concluding his address, Mr. Hanna made reference to the *Hog Production* campaign: Now, we have a hog production campaign on, in which the different provinces are represented, and we have had several meetings, attended by the men interested from the Atlantic to the Pacific. I think I can fairly say that there were difficulties in their minds which they thought insuperable, difficulties in their way that they thought must be fully met, or they would not turn their hand to this field of production. I want to say, and I have attended a number of these meetings, that I have not in mind a solitary man who, in whatever mood he came to these meetings, did not go back to his home determined that so far as he and his household were concerned, they would produce to the limit in order to meet the situation that faced us at the front, and that he would do that regardless of the fact that the Government is not in a position to guarantee the price that he will get. He went home determined, regardless of what it may mean in inconvenience to himself and his family in the way of a bank account, that as a citizen of this Dominion pledged to keep and maintain the men at the front who are to-day sacrificing their lives for him, he would produce hogs to keep alive the men who were risking their lives for him. (Applause.)

I want to say that the Women's Institutes can do much in their neighborhoods. I know the women of the Institutes in the County of Lambton and the western part of this Province, and they know something about what is going on in their homes and the homes about them. They are a force in the community in which they are living, and if they go back with the proper appreciation of the awful responsibility there is upon us, they will go back determined, so far as it lies in them, that the call shall be answered. (Applause.) I know the labor shortage is acute. Many of you would say to me: "Why, the answer is plain; we would be glad to go into this field of production, or any other, if we had the labor." But I was talking hogs at these meetings, and I am talking hogs now. I said to some of these men, and with all earnestness, "Your mother and mine did more to raise the young stock than perhaps we remember. They did a great deal to determine whether those calves would be developed and be what they ought

to be. They did a great deal to determine whether those pigs would be fed when there was no one else to feed them; it was a matter of labor. They threw themselves into it. Why? Because they had a family to raise; the work had to be done; there was no one else to do it, and they did it." (Applause.) I want to say this: if the women of this country could but appreciate how great the need is, few if any women would not respond as fully and as heartily to the needs of the hour as did the mothers that I refer to a generation or two generations ago, when this country was new and their needs were great, and they met them.

I was asked to say something about the pledge cards. Need I take time about the pledge cards? I have been told, from other meetings, that the whole thing was thrown on prematurely, that there was not sufficient consultation or discussion with the women of the country, and the people of the country were asked to do many things, the reasons for which were not plain to them. I want to say personally that I feel, so far as this audience is concerned, that the time is surely past when there is any question about the pledge cards or anything else that by any possibility can lend itself to assist the situation that to-day is so acute. In the judgment of those about us, we considered the plan with regard to the pledge cards was the readiest by which we could get the facts in brief to the people. The response in a great many sections throughout this Province, and in many other Provinces, was excellent, and we thank the women of the Institutes and the other women of this country for their splendid work.

In conclusion, I want to say this: I have talked co-operation, and you have heard it until you are tired, and you have said, "Yes, we will co-operate with you if you will do what we want you to do." There would be no difficulty about that, but we want co-operation, even when we are not entirely correct as to detail.

As to what we are doing in Canada generally, I would ask you to keep in touch with what we are doing by reading the Food Bulletin issued every few weeks. If you are in touch, I am very sure it will be your pleasure to help and assist in every way you can. We will appreciate that assistance, and we know it will be effective as no other work can be effective.

Q.—How in the name of common sense are we to produce more hogs or anything else when the tribunals are taking nearly every physically fit young farmer? I do not mean carrying swill to the pigs, but how are we to get the grain to grow the hogs if they are going to take all our farmers from us, and we women are getting less able to do the work. We have raised those boys, and we cannot do what we used to do. The boys who have stayed on the farms are the boys who love the farms and are doing their bit, and now they are taking them from us by the hundreds.

MR. HANNA: I would just call the lady's attention to this: That you have the assurance of the Minister of Agriculture, and no one will question his interest in agriculture, that to the limit of what can be done, the Courts of Appeal in connection with this matter will have great regard for the very point that the lady has in mind. I cannot say more than that, except that in the morning papers Sir Robert Borden has made a repetition of that statement so far as the boys on the farm are concerned. I want to say no one is taken that can possibly be spared. That is the attitude of mind I would like to make very clear to this audience; but remember that a farm would be of little use to the owners with the German flag floating over Canada. I would like to say this as well, before we save anything, we must save the situation at the front. And, furthermore, I do not think it will ever be said of any man or woman by those men at the front, "When you

got us over there you deserted us." One can figure why this farm and the other farm, and this thing and the other thing, have got to be operated, but I repeat again, there is not much use operating them unless we are operating them for ourselves instead of for the Kaiser.

FOOD PLEDGE CARDS.

MRS. GEO. A. BRODIE, NEWMARKET.

With regard to the food pledge cards, it has been said that so many of the country people have turned us down. I think I know the reason why. I am a country woman and live on a farm, and I know the conditions there. I was a delegate from the town of Newmarket to the Food Convention. We went back to the town and we had a meeting of all the presidents of all the organizations in the town. We canvassed the whole town; it was thoroughly organized, and we had splendid results. In Newmarket, with a population of 3,500 or 4,000, we had only 50 turn us down.

So far as the Institutes were concerned, they were the only country organization through which we could work. We formed no new organization; we had not time for it, and the situation was acute. Instead of having the personal touch of the delegates from that convention, literature was sent to the Institutes, and I know in some of the Institutes that literature was not put before the meetings properly by the officers. One secretary said she got the information, called up the President by telephone, and they decided that they could not do anything with it. But I know this much, that the people of rural Ontario are going to outdo the people of the towns and cities in helping our boys at the front. One thing we have to do is conserve our food, the food the boys need. We are not asking you to go hungry, but, to tell you the honest truth, I would be glad to see some people go hungry for awhile. I have heard women say, "I cannot possibly save anything; I have done all I possibly can do," and when you go to their tables they are loaded with everything you can think of, and you do not see any substitute for white bread. There is not one man, woman, or child in Canada doing all they possibly can do, not even in the production of hogs, and when you talk about labour, we have got to do with the best we have, and this summer I am going to feed pigs. What worse is it to feed pigs than chickens? and I am sure it is a great deal more profitable and easier to feed pigs than chickens. The boys need concentrated food, the food that is going to do them some good, and pork is one of the things they have to have.

Q.—Would they allow the city people to raise a pig or two if they have a big lot?

A.—Certainly. If we could only send what we produce to the boys instead of sending it to a lot of people who should be on the land and producing food for themselves. It is pretty hard to see so many people dressed up in the city who would not soil their hands. They work eight hours a day, but the farmer works 16 hours a day. At the same time, we have a wonderful privilege that no town woman or city woman can have, we have the privilege of standing right behind the boys in the trenches by feeding them. And we are going to live up to that privilege.

I am going to tell you what I am doing in my own home. From now, no white bread will be seen on my table; no cake, only that made out of coarse meal. For another thing, I will not use wheat, wheat cereal, shredded wheat, or anything like that. We have plenty of other cereals that we can get. What is more, I won't use bacon or cured meat of any kind. Some of you say it is too high priced anyway. That is not right, because a pound of bacon to-day will go just as far as two pounds of beef, and it is just as cheap. It is up to us to save all we possibly can. If there are any objections to these pledge cards as a means of getting the knowledge to the people of what is required, I would like to hear some of them.

A DELEGATE: I feel there is a great deal of sympathy from all those here in regard to the food problem. There is no problem in Canada to-day which is more serious and which we women must consider, and I am very glad Mrs. Brodie has spoken as she has regarding the business of pigs. In regard to using substitutes for white flour, I feel there is not a woman in Canada who would not be willing to do without all these things, but there is one great difficulty about these pledge cards, and that is the women of Canada have no guarantee that the flour and bacon and beef will reach the boys in the trenches. We can understand and feel that a man of Mr. Hanna's worth has every difficulty to contend with, and he cannot revolutionize the world in a day, but only when we have the assurance that every grain of wheat is going to the boys and not to strong drink, will the women save.

DR. HELEN MACMURCHY: That can be answered right on the spot. I have a copy of the Order-in-Council of the Dominion, signed by the Governor-General of Canada, saying that no food of any kind shall any longer be used for liquor. That is concluded, signed, sealed, and delivered, and it is the law of this country. And if this meeting of the Women's Institutes did nothing more than make that fact known to everybody present, it would be worth while holding the convention for that alone.

MRS. BUCHANAN: When I was coming here to-day, I met several people I knew, and they said, "What are you going to speak on?" and I said, "Nothing, I am thankful I have to say nothing." But there have been one or two things brought up that I feel like asking, "Why?" to. I am glad to be here. I have come through so much over this food conservation business, that I am thankful to say I am able to stand up and speak to you, and I have read and heard so much about Mr. Hanna that I am glad to see he is still to the fore and likely to be—we are both likely to be.

There is one question about cropping our farms. We gave the only boy we had at home, and we have 100 acres to farm, and across on my neighbour's farm, they work the same amount of land, and yet they keep two or three boys at home, and when anything is said about sacrifice or enlisting, these people do everything they can to keep their boys at home, and really it makes me fairly boil to think those lads—I do not think they are one bit better than mine—should stay at home and have a good time, while my boy is over in France fighting. I know that food is needed, and more food is needed, but I do not think it hurts us Canadian women one bit to do a little outside work. This lady said she did not object to carrying swill to pigs, but she did not see how she would have it to carry. I have gone out and helped to harvest the grain. I was speaking at Orillia one night, and I had pitched barley all the day before. Another day I pitched oats in a field, and I went and spoke at a Conservation of Food meeting. What one woman can do, another can. Perhaps I am stronger than some, but being out in the fresh air

makes you stronger still. The ladies who sit in the house get weaker and weaker. It is like the blacksmith's arms, "By fairly using yourself, you get strong."

I think it would be a great deal better for us to let our boys go. I know food is needed, but men in the front trenches are needed still more, and the mothers are to blame in a great many cases for keeping their boys at home. There are a great many people who are literally doing all they can, but we can all do more. I heartily agree with everything Mrs. Brodie has said, but I do think if our women would not be so selfish, and let their boys go, it would be more to their credit.

MRS. H. J. SCRIPTURE: I had to come to this convention to learn that the food pledge cards were a failure, but if we had heard of the amount of temperance that has been secured since the food pledge cards were issued, we would say that they are a success. I came to the food convention held in Toronto in July and learned the grave conditions we had to face with regard to food for the soldiers, and after going home we got instructions from the Department how to proceed about the canvass for the food pledge cards. In due time they came. I had written to all the branch secretaries in our district saying this canvass must be done by the Women's Institutes and other helpers arranged by the Department; and they set to work immediately and arranged their canvassing committees. I had been taking the pledge cards to many people with whom I came in contact, and I found they were not in sympathy with them. A great many people seemed to have the idea that they would have to starve their families to enable them to sign the pledge cards. That was a mistake to begin with. We had our meeting, and we told the members of the very grave necessities, and I think we only had 25 refusals in our town of about 1,500. I know they were very unpopular, but, as I said to the women, it was not the women who chose this matter, but this is the weapon that has been given to us to maintain the soldiers at the front; this is the only weapon placed in our hands, shall we lay it down because it is not what we would have chosen? When we first heard about the food pledge cards, I said, "Why, the women of the Institutes do not require to pledge themselves to do the right thing; they do it anyway," but that does not relieve us from discharging our duty, and let us do it like loyal Institute women.

REPORTS OF INSTITUTES.

EXTRACTS FROM BRANCH REPORTS.

STROUD.—Institute started a public library five years ago, with 101 books. To-day they have 285 books. They charge a fee of 50c. This, with an occasional \$10.00 grant from County Council enables them to buy new books. They maintain a cot in the Children's Shelter, Barrie. Cash for field comforts, \$140.00. Cash for Red Cross, \$40.00

GRANTHAM.—Has given in money for patriotic purposes, \$479.50. The Lincoln County Women's Institute, as a whole, helped to celebrate confederation in the City of St. Catharines by having a booth in the park. They cleared \$488.83, which was to go towards building a club for War Veterans.

TILLSONBURG.—With a membership of 59, raised for all purposes during the year \$829.85. Five cases of clothing were sent to fire sufferers, valued at \$5.00 each. Six cases of clothing were sent to French Relief, valued at \$6.00 each. 250

parcels donated by Town Council containing fruit, candy, and nuts were distributed to the children of the soldiers, Christmas Eve, by the Women's Institute.

PRICE'S CORNERS.—Organized October 12th, 1916. Received donations from Farmers' Club and a grant of \$44.00 from township for patriotic work. Twelve individual boxes were packed and sent to the boys from the neighbourhood who had enlisted. Young girls very active in this branch.

HALIBURTON.—Has membership of 61 women and 11 girls. The girls have taken an active part in the social work of the Institute. Over \$450 was handled by the Institute for patriotic purposes; 45 boxes were sent to the boys at the Front for Christmas. Institute exhibited at the Fall Fair: Bread, rolled jelly cake, fruit cake, preserves and pickles—1st, 2nd, and 3rd prizes were given.

ST. GEORGE.—Has membership of 105. They held medical inspection in village school and two rural schools, followed by a clinic. They held a sewing course and a canning demonstration, and are now anxious for Home Nursing and First Aid course. Monthly expenses for Red Cross, \$200. From 65 to 75 boxes sent each month to St. George boys at the Front.

ORILLIA GIRLS' INSTITUTE.

Orillia Girls' Institute was organized November 15th, 1916, at the conclusion of Home Nursing and First Aid Course, with a membership of 120. A second demonstration course in First Aid was immediately given, and as a result several girls have passed 1st and 2nd examinations of St. John Ambulance Course. Considerable Red Cross work has been done. Home gardening and canning contest held. Successful home cooking sale and afternoon tea, also evening lawn fete. Amateur play to be put on this winter.

PELHAM BRANCH.

Pelham Branch had for the past year a membership of 54. Meetings are held in a formerly unused room of the public school-house, which the Institute members cleaned, decorated, and have since maintained for their own meetings, as well as for boy scouts, girls' club of Institute, and Red Cross work. The girls' club of this branch has done considerable work by way of concerts, selling ice cream, etc., raising in two years \$357, which has been used in Red Cross work and donations to the Hamilton Sanatorium, and a cheque for furnishing of X-ray room.

Through the efforts of the Institute, electric lights were placed in the village of Fenwick, and Institute workers are pledged to maintain lights for a period of five years at fifty dollars a year.

As to Red Cross work, the Pelham Council have granted a sum of money for buying sewing materials, and the different organizations and ladies' aids of Pelham Centre, North and South Pelham, have been sending finished garments in connection with this branch to the number of over eleven hundred garments and 300 pairs of socks to Red Cross work. To aid this work, Institute members have had tea-room booths at fall fairs and realized some money in that way. No lunch as a rule is served at regular meetings. At Christmas time a special treat is given and an old-fashioned grab-bag enjoyed by all. A committee for visiting sick members is appointed, and where death enters a home notes of sympathy and flowers are sent, thus trying to keep the members in touch with one another, and keeping as well to the motto, "For Home and Country."

HALIBURTON WOMEN'S INSTITUTE.

In compliance with your request for a short report of our year's work for Haliburton, I am pleased to be able to report a good year's work, as the conditions of war call upon us to devote a good deal of our time and energy to do our part as women in both work and money for the Red Cross, Prisoners' Relief Fund and home relief in various forms. I am pleased to say we are always able and willing to meet any appeal that comes to us. I am proud, too, of the women and girls of our Institute, who are always ready either in time, work, or money to bestow on these most urgent calls. Awful as this war is, it will prove to be a great educator and instructor for the women and girls of Canada; it has opened their eyes and given them a broader view of the work that calls for their best endeavours for home and country.

We have 72 members, 11 of these being young girls who are trying to become useful women. Some of them entertain with music. They take their turn in being hostess at our monthly meetings. We had during last winter a social evening once a month, with games and some songs and a light lunch free. One of the committee sat at the door with a plate for silver collection. We found that was the best way to make money. Five members managed the evening's entertainment, with the young girls to assist serving lunch. We made enough to buy supplies of yarn and material to work up for the Red Cross supplies, and sent \$25.00 to the Prisoners' of War Fund and Home Relief \$4.00. October last, Trafalgar Day, 1916, we made with collections and sale of home-made bread, cakes, etc., and vegetables, \$200. The Municipality donated \$100. Sent socks to Red Cross and other garments. Red Cross socials and collections, \$113.52. We served 15c. lunch on the 1st of July, amount received \$50.00. Another way we have for obtaining money is to have a flower box placed on the table for collections to buy flowers for the sick or a wreath for the dead; another we have, we let any of the members bring a quilt and we quilt it for the small sum of \$1.00, we have done two in this way, which goes to the Red Cross. We buy our yarn from the Red Cross, and we supply the members with it to knit into socks.

We are now busy making socks to send to our soldiers; we are sending each a box for Christmas, that is, our own town and country boys, which means about 45 boxes.

We had an Institute exhibit at our Fall Fair which was very good; 1st, 2nd and 3rd prize was given on each class of bread, rolled jelly cake, fruit cake, preserves and pickles. We paid the prizes out of our own funds.

We are sending a delegate to Toronto to the Fall Convention. We also gave a banquet to our soldiers when they left. I hope we will be able to give them another when they return.

EVENING SESSION.—NOVEMBER 22.

SIR WILLIAM H. HEARST, Premier of Ontario and Minister of Agriculture, occupied the Chair.

REPORT OF WEST SIMCOE.

MRS. J. MARTIN, NEW LOWELL.

When war was declared, I think every Institute member pinned the motto "For Home and Country" to the dear old Union Jack, and got right down to service, and three years of war has taught us that, national interests must predominate, while home relief, community work, and our local charities are not forgotten. The majority of our members directed most of their activities around two centres, Red Cross and Patriotic work. Home Relief was taken up in the following manner: By forwarding to the Northern Fire Sufferers bales of clothing; the Children's Aid Society and the Children's Shelter received attention, and the Canadian Hospital at Kent, England, was also remembered. West Simcoe Institutes are always ready to make the most of possibilities, having adopted many ways of raising funds: Teas, garden parties, showers, quilts, entertainments, bazaars, and raffles, and last, but by no means least, voluntary contribution. Branch work has developed social life. Branches visit each other, and vie with each other in getting up the programmes. Papers are exchanged, and in this way, we believe, we become very helpful to each other. The educational side of our work has been ably taken care of, and we have had many good papers and addresses from outside sources. Our district is made up of twelve branches, some not very large in membership, but quite grown-up in energy. I have not tried to enumerate the contents of the bales of supplies.

AVENING BRANCH.—Contributed cash to British and Canadian Red Cross, \$361.00; hospital supplies, valued at \$152.25, and for months have been sending two seven-pound boxes every two weeks to two soldiers who are in one of the Canadian Hospitals in France; also sent 657 pairs of socks.

CREEMORE.—Has helped with school fair, cash \$5.00; gave \$172.00 to Red Cross, \$25.00 to the Belgian and Serbian Relief, \$10.00 to the Barrie Children Shelter, and a bale of clothing. Sent 108 pairs of socks.

MAPLE VALLEY.—Branch is on the outskirts of our district; small membership but very much alive. Sent \$65 to Red Cross, \$10 to Y.M.C.A. fund; sent bale of hospital supplies; has built and furnished a hall for the Institute, and any who care to ask for the use of it; sent 79 pairs of socks.

SINGHAMPTON.—Another outlying branch sends twenty-five boxes overseas every month. Meets every week to sew; sent four bales of supplies, have cleaned up and improved their town cemetery, and intend to maintain it in future; have \$75 on hand from sale of ice cream.

DUNTRON.—Has only twelve members; sent 300 pairs of socks; sent three large bales of hospital supplies; gave \$125 and fifty pairs of socks to their 25 boys that enlisted; sent 51 Christmas boxes; has purchased an organ for Institute and provided wood and provisions for a needy family for the winter.

STAYNER. Branch sent Red Cross \$118.25, French Relief \$90, Y. M. C. A. in France \$50; sent \$40 worth of Christmas boxes, eighty pairs of socks.

SUNNIDALE CORNERS.—Branch gave \$107 to patriotic work; sent supplies to the value of \$472. Their special work has been a library having on hand 283 books. They sent 283 pairs of socks.

NEW LOWELL.—Endowed a cot in the Children's Shelter, Barrie; paid for board and clothed an orphan boy for three months; sent bale of supplies, valued at \$80; sent jam and soldiers' comforts; sent 175 pairs of socks.

DUNEDIN.—Gave two bales to Belgian Relief and \$100 for patriotic work.

BATTEAU.—Sent 100 pairs of socks, and gave \$87.70 to patriotic work.

EVERETT.—Patriotic work \$170.

ALLISTON.—Our baby branch is only three years old, and has accomplished wonders, with a membership of twenty-seven, and an average attendance of seventeen. They have sent 33 bales of hospital supplies, value \$2,786.68. They have contributed to Belgian Relief \$180; sent 185 parcels overseas, value \$455; endowed a cot in Canadian Hospital in England, \$50; gave \$79 for patriotic purposes; sent 1,151 pairs of socks; gave \$10 per month to the support of four Canadian prisoners of war in Germany. Some of their special features of work has been a clean-up day in the spring when the members, personally, collected rags, rubbers, and papers, realizing from the sale of same \$90. They have what they call a "200 Club." They divided the town into four wards—two ladies collecting in each ward once a month, and in 17 months they have collected \$1,050. At the Alliston Fall Fair they held a raffle on a ton of coal and 100-pound sack of sugar; 25 cent tickets on the coal, and 10 cent tickets on the sugar. They realized \$107.50. They meet weekly to sew. Truly, Alliston is the banner branch of our district.

We contributed to the County of Simcoe's special work, and at our district meeting, this spring, we had a surplus of \$15 which was voted to the Y. M. C. A. in France, giving a total of \$8,144.76 for patriotic purposes, and 3,447 socks. As long as the need exists, and the call for help comes, we will continue to serve.

CHAIRMAN'S ADDRESS.

SIR W. H. HEARST, TORONTO.

It is a great privilege I enjoy to-night to be able to preside over such a large gathering. Since entering public life I have always taken a very great interest in the work of the Women's Institutes, and since I have been Minister of Agriculture of the Province, I have been more in contact with this organization than ever before. I have learned more of its objects and become better acquainted with what it is accomplishing, and the more I have learned of your work, the better I have understood it, and the more I have seen of what you have done, the more important it has appeared in my eyes, the more necessary the character of the work you carry on from day to day and from year to year.

If one required any better insight into the great things that are being accomplished by the Women's Institutes of the Province, we have the proof in the report that we have just heard read. When we learn of the activities of that one district, we can appreciate something of the sum total of what is being accomplished throughout the Province.

I want to take this opportunity of extending my thanks as Prime Minister of this Province to the women of the Institutes for the splendid support they have given in all patriotic work since the outbreak of the war. In Red Cross work and in supplying comforts and necessities for the men overseas, you have always taken a leading part. I know that you have had your reward in the satisfaction of a duty well done, and you can rest assured that not only the Government but the people of Ontario generally appreciate what you have done, and say God speed you in carrying on your work in the future.

Another very important work that you accomplished this year is in connection with the production campaign. The call came to us early last spring for greater production. The Government and the organizations connected with it did what they could to stimulate production throughout the Province, and did what they could to assist in that production, and one of the great factors in connection with that campaign that accomplished good results was the work of the Women's Institutes. We have a call stronger than ever for service along that line and along other patriotic and philanthropic lines in connection with the war work at the present time, and we ask you not to rest upon your laurels. I am sure you will not, but that you will redouble your energies and your activities during the coming year. The response in the past has been magnificent, and I am confident in the future it will be equally satisfactory. We must none of us slacken in our work.

The Women's Institutes did no small part in enabling me to come to the conclusion that it was time the women of Ontario should be entrusted with the franchise both in municipal and legislative matters to the same extent as the men. A responsibility has been cast upon you, and I believe you will meet that responsibility in a proper way for the development of the country. The ballot is a sacred trust, not to be used for private advantage or private prejudice, but to be used for the purpose of advancing the welfare of the State, and it is to be used with due consideration of every subject that is brought before you. I believe that is the way in which the women of the Institutes at all events, and I believe the women of this fair Province generally, will exercise that power that has been conferred upon them.

I have been asked to refer to one subject in which the Women's Institutes have taken special interest; that is the subject of the feeble-minded. It is a subject deserving of the very best thought and consideration of the Government and of public men and the people of the country generally. Another question that is being given considerable attention is that of venereal diseases, and the effect that these diseases are having upon the citizens of this country; not that conditions are different to what they have been in the past, but by reason of the war that problem has been more particularly brought to the minds of the people with the result that we have referred both these questions to a Commissioner to study thoroughly into all matters pertaining to them, the extent to which they exist, the best remedies to be adopted in meeting them, and everything else, so that the best remedies possible can be obtained. We find that many of those by whom the disease is disseminated are of the feeble-minded class, so that the two questions are intertwined. Mr. Justice Hodgins has been appointed to make this investigation. He has for some time been making a study of the medical question and the medical profession and the treatment of diseases in a broad and comprehensive manner, and has already collected considerable data, and is very well informed on the subject to which I have referred. I believe that with the assistance that can be given him by the officials who have made a special study of these matters, the subject can be thoroughly dealt with.

Another question that I have been asked to speak on to-night particularly is the question of the Victory Loan. I feel it is almost necessary to apologize to this audience for taking up their time in emphasizing the importance of this subject, but perhaps it cannot be emphasized too much. Prior to the outbreak of the war, Canada was borrowing large sums in Great Britain. The Government of the Dominion, the Provincial and Municipal Governments and large corporations went almost entirely to Great Britain for funds. So great had that been

practised that over \$2,500,000,000 had been loaned by the people of Great Britain to the people of this country not only for the construction of our railways and the building of wharves and sewers and streets in our different municipalities, but to the loan companies of this country who in turn loaned it to the farmers and others. You will appreciate how great the change was when, upon the outbreak of the war, that source of supply was entirely cut off.

That, however, was only part of the difficulty with which the Dominion Government was faced, because they had to enter upon a very large expenditure in connection with the carrying on of the war.

After reviewing the expenditures and appropriations for war purposes up-to-date, Premier Hearst said: "The fact remains that there is one place and one place only where the Dominion Government can get the money to carry on the war and to purchase the supplies to which I have referred, and that is from the people of Canada. The people of Canada have the money in their pockets and in their banks, and the Dominion Government wants to borrow it. In this way only can we carry on the war, and in this way only can the business of Canada be carried on. This is a question that comes home to every man, woman and child in the Province because every man, woman and child should have a part in this loan, and in that way do their part to assist the splendid men who are holding the Western Front in Flanders to-night.

Let me give you a few reasons why I say you should invest in this loan if it is at all in your power to do so. In the first place, the interest that you will get on your money is good. The Government is not asking you to *give* this money. They are not taking it by force; they are simply asking you to *lend* it to them at the rate of 5½ per cent. You have all of Canada's assets behind the loan. The people of Canada are possibly the richest people in the world. If you take the natural resources God has given us in Canada and take our wealth and divide it up among the population *pro rata*, you will find there is more wealth per head of population in Canada than is possessed by any other country in the world.

When you are loaning the Government money, you have behind it every dollar's worth of property there is in the whole of the Dominion of Canada, because the Government have the taxing power, and so long as there are any resources or wealth left, the Government is bound to use that power in order to discharge their obligations. The only possibility of that bond not being paid would be by reason of the success of Germany in the present war, and the way to prevent Germany winning is to buy Victory Bonds. You can secure these bonds for almost any length of time you desire, five, ten or twenty years.

Another question that may be asked is, "Is this the last loan the Government of Canada will ask of the people of this country?" Certainly not. More demands will undoubtedly have to be made by the Dominion Government, if not by the Provincial Governments, for funds before this war is over. You might say, "Will I get as good terms as they will give for any subsequent loan?" Certainly you will. That is one of the conditions of this loan. If in six months or a year from now the Government is compelled to issue bonds again and ask the people to buy them, and if at that time it is felt that they should pay six, seven or eight per cent., you are entitled to say, "Here is my bond that I bought in November in 1917 at only 5½ per cent." and they will give you a bond bearing six, seven or eight per cent. as the case may be. I do not suggest that securities will ever be issued at such a high rate of interest, but I am just explaining the situation to you. The terms of payment for these bonds are so easy that it brings them within reach of everybody.

I believe that one of the great benefits that will be derived from the loan is that it will help to inculcate in our people the spirit of saving, and will mean much to us in after years. We are naturally an extravagant people; we are inclined to live up to our income no matter whether that income be small or large. If we have any money to invest as a general rule we invest it in some wildcat mining scheme, where we have no chance of getting the capital back much less the interest, or we invest it in oil lands where the chances are not one in a thousand of your ever seeing your money again from the day you remit it to the broker or his agent. You invest it in town lots in the North-West or some other place in Canada or the United States, and say good-bye to it when you send it through the post to the agent.

Now, you have an opportunity of investing your money in a way in which you are sure to get it back with a good rate of interest. It appears to me that this kind of investment is one that should appeal very practically to the farmers and farmers' wives of the Province of Ontario. Some of you will say, "We have not very much ready cash; it takes all we can get to keep the farm going and to pay the hired help," and I know that is true to a large extent indeed, but we can always save a few dollars, and a few dollars carefully saved will enable you to become the purchaser of at least one bond.

You ask me why I say it is specially adapted for the farmer's wife and daughter, and I say because you require no expert advice in connection with it. The plan is so simple and the scheme so plain that any person can understand it. You do not require to pay any lawyer's fee, and the transaction requires no expenditure whatever on your part, and you have better security than any bank in Canada can give you, strong and ample as are our banks, and you get almost twice the interest you would get in any chartered bank. You must remember that while the people of Canada are loaning this money to the Government you are really loaning it to yourself, because the minute the Government gets it, they turn around and pay it back indirectly to the farmer, the manufacturer and the artisan.

Let me point out just what it means to the farmer. In this present year of 1917, the cheese output of Canada was computed at \$40,000,000. The only market we had for that was Great Britain. Great Britain could not pay any cash. Unless the Dominion Government had been able to pay for it in cash there would have been no market for the cheese, and that great industry would have suffered from one end of Canada to the other. The Government could not have paid that money if the people had not loaned it to them. The agricultural products for the fiscal year of 1917 amounted to the large sum of \$501,000,000, over half a billion of dollars, just double what it was in 1914, before the commencement of the present war. The present Imperial Munitions Board is expending \$1,000,000 a day for munitions and other things that they are procuring in Canada. Our neighbors to the south have just concluded a very satisfactory Loan Campaign, and they have agreed to loan Great Britain and her Allies overseas \$3,000,000,000. One of the conditions of that loan is that that immense sum must be spent in the United States, and it goes back into the pockets of the farmers and artisans in that country.

The more money you pay into this loan, the more you will strengthen the Government, the sooner you will bring back to your homes the men who are overseas. Every dollar you put in, you will help to hasten the day when we will welcome these men home with duty well and nobly done. In so great a cause as this, no sum however small is negligible; no sum however large is too much for anyone to give if they can afford to give it. Our men must be clothed and supplied with the

very best equipment that money can buy or science can give. We live at home in plenty and luxury, then surely we must feed our men with the very best if it is possible to do so. I doubt if we really realize the sacrifice the men have made that have gone to the front and who are going to the front and who will go to the front in the future. Not only do they go there and put their lives in the balance for your protection and mine, but we ask them to give up their earning capacity, and men who are earning one thousand, two thousand, three, four and five and even ten thousand dollars have given up all that and have given up the best years of their lives to serve the country for a soldier's pay of \$1.10 a day.

If we have the indomitable courage of the men at the front, there is no doubt we will supply the money that is asked. There is practically no limit to what a free people can do when the life of the country becomes supreme, and one of the campaigns we are embarking upon now is that of thrift and economy, so that we will be ready not only to respond to this appeal but to other appeals that may be made in the future.

If we can cut off unnecessary luxuries and save and economize in every possible way, we will be ready to meet all calls that can be made upon us. We have a great responsibility to perform, and we must see to it that we discharge it as becomes people such as we are in the rich Province of Ontario.

I just want to add a word or two with reference to a subject that has been discussed at this Convention, and with which you are thoroughly familiar, and that is the food question. I want to impress upon you, if I can, the necessity of production during the coming year. I understand and appreciate something of the drawbacks and difficulties and hardships under which the farmers work at the present time. I read much that is written in the newspapers and much that is said on the platform with reference to the farmers by people who know nothing of what they are talking about, and do not appreciate the conditions. I have no more sympathy with these statements than you have because I know something of the facts and of the difficult conditions under which farm work is performed. You have been short of help and you have not had the opportunity of cultivating the soil and preparing the seed beds for next spring as you had even a year ago or other seasons, and a particularly difficult situation awaits you next spring. Added to that is the shortage of labor and the prospects of it not being any better next spring. I am not here to say anything on behalf of the Government or to discuss political affairs, but I want to say this, that it is not the fault of the Government, and it is not the intention or wish of the Government that necessary farm help should be conscripted, and that men who are necessarily engaged in farm work should be taken from the farm. It has come to my attention that tribunals have not been properly interpreting and carrying out the spirit and intention of the Military Service Act in that regard, and I want to emphasize here that for every case in which you feel there is a grievance, you have an appeal from the local tribunal, and the difficulties will be rectified in that regard. I know that you are facing a very serious problem. You may say it is very easy for me to talk and request you to make great production, but we do ask you to do your very best, and no man can do more. We ask you to speed up production and help the men to hold the line. They are accomplishing the impossible for us in order that you and I may be free, and in order that the Hun may never set his foot on this fair Canada of ours, and in order that our women may never have to submit to the horrible atrocities that the women of France have suffered. (Applause.) Our men would not take no for an

answer. They were Britons and they did not know how to yield. They accomplished the impossible. They saved the rush of the Hun on Calais. They saved France, and they saved the world. If we can catch the indomitable spirit of these men, we can also accomplish the impossible.

Early in the war, during the great battle of the Marne, a British soldier lay wounded, and as he lay there waiting for someone to come and succour him, he heard the cries of a Belgian woman who was being ravished by these devilish German hordes, and these words broke from his lips, "My God, if that should take place in England!" He might well have said, "My God, if that should take place in Canada!" What is preventing it taking place in Canada is Canada's gallant sons who are laying down their lives in France.

On two occasions Canadians saved the day, and they may save it again. What did you say to these boys at the front, and what did I say to them, "We are behind you boys to the last man and the last dollar in this great Province of Ontario." Our ranks are depleted to-day. Our front line regiments are not at full strength, and men have had to fight for three years because there were not men to take their places. Are we going to desert these gallant sons to-night and leave them in that position? Is this fair land of Canada that God has permitted us to dwell in going to leave her sons without properly supporting them? Great duties are upon us; great responsibilities rest upon us, and I pray Heaven that we fail not at this crucial hour in discharging these responsibilities, but that we shall live up to them to the best of our ability.

In no land that the sun shines on are there better women than we have in the Province of Ontario. These are no empty words. I know they are true, because you have proved them to be true; and to-night I want you to take this question to heart. Remember the men that are filling the trenches and remember the hardships that they have gone through, and therefore whatever sacrifices may be necessary, whatever comes to you to do, do it heartily and support the men in the trenches until final and complete victory is achieved, and until Germany knows that war does not pay, and until Germany knows that the wages of sin is death. We will continue in this war until we achieve victory. Gruesome and bloody as that may be, grant that we may do our duty!

THE CHALLENGE OF THE BOYS OVERSEAS TO THOSE WHO SERVE AT HOME.

CAPT. CHARLES W. BISHOP, NATIONAL SECRETARY, Y.M.C.A., TORONTO.

I appreciate the fact that in attempting to interpret the spirit and challenge of the boys at the front to this particular group, I am trying to do it to those who probably least of any group in our country may require any challenge to be brought to them. When I compare this audience to-night with the audience that just a year ago now it was my privilege to face in various camps in England and at the front in France, I think these two audiences are a counterpart of each other. Those other audiences were our men and our boys, a solid audience of khaki, and this is an audience of women who are serving at home, so when one attempts to bring any message or challenge from that end of the line to this end of the line, I appreciate how difficult the task is.

If you had the privilege of crossing to the other side and of visiting the camps where you can observe the life and operations of our boys in the firing line in France, you would expect that the chief effect upon you would be a desire to minister to these boys. I have only to look at the nimble fingers steadily at work to realize that you are constantly working for the boys at the front.

If you would watch the boys in their camp life and observe them in the midst of the struggles and conditions of the fighting front, another feeling would come to you of something that they are challenging you to do as well as something that you would like to do for them. You cannot be with them long without having this feeling: "I cannot stay here; I must get where my duty is, and I must be doing my bit as these boys are doing theirs." And you will work with more courage and more devotion and more sacrifice because of having been in the midst of the most heroic example that men of the ages have given, and that it is hard for us at this distance to fully appreciate.

As doubtless most of you are aware from the position that I occupy, I come in direct contact with the soldiers overseas in the service of the familiar Red Triangle, and I am brought in close contact with the work of the boys, and I am going to try and interpret some of these things for you for a few minutes to-night. These are things that are impressed upon everybody whose privilege it has been to be allowed to engage in this particular phase of service that I have been permitted to work in.

The first challenge is the challenge of that wonderful undaunted and invisible spirit, and every man who has come home has borne tribute to the same thing. Perhaps one or two experiences would help you to appreciate what I mean. If you stand on the roadside along which a battalion of these boys are marching and see them marching up and disappearing over the hill into that hazy area in which the shells of the Boches' guns are constantly breaking, and listen to the fellows whistling and hear them sing, hear them josh one another as they go along, you wonder where on earth these fellows are going or if they realize the business they are on. Yes, they certainly do, better than you would, for many of them have been over the top before. Yet it does not daunt their spirit. They go into it with cheerful, open faces, and this is the spirit you see as they come out again, not the same solid battalion that had marched in. At the battle of the Somme it was my privilege to be with the boys, and they did not come out as cheerful perhaps as when they went in because there were times when it was hard for them to bear up. There were times when it was humanly impossible to be cheerful.

One day a young man came down the road wounded, and he was met by one of the officers of the Y.M.C.A. This boy had just come from the dressing station up towards the line, and his arm was all bandaged and his hand crushed. and the officer stopped and chatted with him a moment. The officer said, "It is too bad that you were knocked out up there," but the boy said, "It is all right: I am better off than you think. When I came over here I offered my life for Canada, and all she has taken is my hand." Can you imagine a spirit like that?

Or the spirit of the fellow who was walking upstairs in a hospital one day when another of these officers of ours was nearby. This young fellow was bandaged from head to foot; he seemed to be most terribly cut up by wounds, and he could scarcely walk around. This officer stood and watched him, and after the young fellow had gone up a few steps, he noticed this officer looking at him and noticing the peculiar look on his face, the man with the bandages turned and said with

a smile, "Buck up, old man, buck up." That is the challenge these boys are sending back to us. Some of us are wasting our sympathy unnecessarily. It is true they are going through severe hardships, but if they saw you sometimes with your white faces and could not read the sympathy in your heart, they would say the same thing: "Buck up, mother, sister or wife; buck up." That is the challenge and the spirit that these boys are sending back. I only wish we had more opportunity of interpreting that spirit, and that we could respond to that spirit in the proper way. I do not believe it is possible for us to rise to the wonderful spirit these boys are displaying.

Who are these boys and these men? They are your sons and brothers and husbands. Some of them are boys that we despaired of at home. Some of them are the boys who unfortunately clogged the wheels of justice in our home towns. Some of them are boys that you did not know what to do with around the house or in the town. Some of them are boys whom you misunderstood, whose capacity and power you had not seen displayed, and they are sending back the challenge to us to appreciate more than we have before the innate capacity of virile manhood. Have they to go away from home to war to show what they possess? If so, it is some reflection on the boasted civilization that we possess at home. Why do we have to send the boys from our streets to France, and into the trenches before we know that they are heroes? Why is not there more in the life of our civilized community at home in the ordinary times of peace to draw out these qualities that make them show the men they are? That is the challenge that comes to you at home from this undaunted and invincible spirit that these boys of ours are displaying over there.

Then I must speak a word of the challenge that comes to us from these men in the fight they are putting up for their own moral integrity. This was an aspect of the soldier's life that we hesitated to speak of or deal with in the early months of the war, but those of us who have been engaged in the activities of the war itself have found that it was folly to cover it up with undue prudence. It is a side of the life which was such a great factor in the lives over there. It is a subject that is most difficult to speak on, simply because it may give an impression one way or another, and may be misunderstood. The great majority of our men and boys in the army have had to face temptations greater than they ever had to face before they entered the army. That is not saying what the boys themselves are doing, that is simply saying that they have never had to face such temptations before. And I want to tell you in the next breath that we believe, and we have had the testimony and the evidence, that the majority of our boys have put up a fight, and the majority of them have kept themselves strong and clean, and they have proved that the strong moral fibre that has been inculcated into them at home in their training and education has enabled them to put up that fight.

The challenge that comes to us is to support them in that fight. I wish you could interpret the significance of many things that transpire. Here I must refer to the work of the Red Triangle, and I wish you could appreciate the significance of many of these gatherings in the huts in which the Young Men's Christian Association does its work, and which have become the home of the soldiers over there. I want to say that after a few months of experience over there, I had occasion to thank God that he had given me the opportunity and privilege of being connected with the organization that has been able to do so much and that has been such a faithful means of helping our boys to put up this fight that is

going on at the front. Look into the faces of the men when a concert is going on, when the men are putting up the programme on the platform themselves or it may be a lecture, and you realize what the business of that crowd of men on that occasion means; if they were not there, you would know that they would be somewhere else.

These boys want to make a decent fight; they want to win out, and as I listened to these reports to-night and found that one branch after another had made contributions to the work of Y.M.C.A., I would like to ask you not to forget that organization, but to continue in the good work. By giving that support to your boys over there, you are helping them to put up this fight for their moral integrity.

I want to say a word to you about the challenge which comes to us from the religious life of these men. I am conscious of the fact that I am speaking to an organization that is not a religious organization, but if you know how to interpret the spirit of religion, and if you know how to touch the hearts of these men, you will discover how deep the religious appeal is over there. You can tell it if you stand in these huts and hear the boys sing the old hymns, men who never darkened a church door for many years; they are there singing these hymns, and pouring out their hearts. If you ask them what they want to sing, they will call out the number they want, and then if you watch them as they sing, you will see the spirit of religion in their faces. If the wives and sisters at home could have seen these faces and could have read the expression in their eyes and could have looked deep into their hearts, they would have thanked God for that spirit.

I must tell you of one incident that occurred in one of these little meetings, a midnight service or family prayer. It seems funny to talk of family prayer over there; sometimes there are only 40 or 50 in attendance, but in some cases there have been 200. The padre was standing on the platform, and had been asked to lead in prayer, but before he got started, a voice came down among the men to the surprise of all, and a soldier was lifting his voice in prayer. As they listened they found that he was among his comrades, and with his eyes closed and his voice uplifted, that man was offering a prayer on behalf of his mother and his sister in a lonely shack on the prairie in Saskatchewan. If you mingle with the men under these circumstances, you are bound to find that their religion is deeper down over there than it is here. Do not forget to keep the religious fires burning upon the altars at home, because many of these men will come home warm with a religious zeal that perhaps they have not known for a long time, and it will not do to have them come home and find the religious fires here burning low.

These boys are not forgetting about Canada. They sit around in groups and talk about it, and they are constantly wanting to know what is going on at home. How are things being preserved? What are their mothers doing in these days, and what great changes are taking place, and some of them think, "How I would like to be there and to see the changes that are being made," and the challenge they send to us is that we are controlling affairs in this country that is theirs as much as ours, and we are controlling them for them as well as for ourselves. If we fail in our trust and make mistakes and blunders here, it means that we fail to keep this country in the condition that it ought to be when they come home.

It is not my place to appeal to you as to any political views you may have, but I appeal to you as to the motive with which you view the Military Service

Act, and I appeal to you to do it with a sense of trust for the boys that are over there, with a sense that we must keep this house in order for them when they come back, and in that sense I trust you will cast your vote. I trust you will do it with a high, noble motive and not with narrow partisanship nor in a petty political way, but in a high patriotic and honorable spirit. It is our duty to stand by the boys who are doing such heroic things for us over there. We should try to lift ourselves to the same high plane that they are on, and every act we perform in business or politics should be one of sacrifice for the glorious heritage that we possess in this Dominion of ours, and we should do it in the same spirit as the men who are fighting for us over there in Flanders. That is the challenge which the boys send to you.

ADDRESS.

Mrs. H. W. PARSONS, COCHRANE.

Last night as I sat here and listened to Mrs. Stobart, it recalled to me an experience I had in Germany. I was educated in Germany. It is one thing I should not have done, but they say open confession is good for the soul. There was going to be a very great celebration in Germany, mostly military, and I was very keen to get there, but I was told that it was not for civilians. However, I am not very easily sat upon, and I was determined to get there. I knew a Major's wife. She was very, very insignificant and plain and ordinary, and her hair was red—she was very much like myself—and she was ill. She had a passport to go but could not do so. I went to her and I said, "You cannot go; will you give me your passport?" At first she said she could not, but after I talked to her for a while, she said, "Yes, I will." I was to get the loan of her clothing and I was to go in her name. Like a foolish woman—because you should not always tell your husband everything—she told him what I was going to do. He came puffing and spluttering, and he said "You cannot do that, if it gets found out I will be court-martialled. I didn't care if he was. I said to him, "Major, you will not know me from your wife, I am going to wear her clothes." He made me swear that if I was challenged I would say I was his wife. I said I would, and I went, and I didn't have to say anything. I had to give the password, and I can tell you I did it in fear and trembling. My ears and eyes were open. The court was there, and they had a special apartment. The whole place was filled with men in uniform. There were big men there from all parts of Germany. They related the great work of their dead heroes and they told of the great things Prussia had done, and how great Germany must be in the future, and then there came an appeal to these military men who were there: "Tell your men that they must bow to the yoke of heavy taxation, because Germany must be great." Then they unrolled some of their plans. I am not telling you any fairy story, I am telling you what I heard. They said "Here we are a growing country, and we are an internal country and we have no way to the sea. There is the Rhine, a great river running through our country and we haven't even got the mouth of that river in our possession. We should have the mouth of the Rhine in our possession. We must get Holland first of all." That was their first step, they intended that Holland should be theirs. They also said that they must have Northern France, and that was 25 years ago. Then they said that they had a right to get into the Mediterranean and to pass out through the Straits to the West.

They also said that they must rule the seas and put the little people on the island in their place. I also heard that, and it was said in the presence of the Kaiser. Things are not said in the presence of the Kaiser without his full consent. When this war broke out the thought at once came to me they mean to take Canada, and I said to myself the women must play the game like men. We must suffer now for the sake of our children and our children's children, yet unborn. Then our men went out. These glorious men of Canada went out, and, as Sir William Hearst has said, "They held the line and they saved the day." They did the impossible over there for us. We must realize that we are in this fight to a finish and that we must see it through. We must square our shoulders to the task. You have proved that already in this convention yesterday and to-day, and you are going back determined to prove it more in the days to come. I believe you will go home and double and treble your work to help these splendid men who are defending us on the firing line. Let me give you an instance of the spirit of our boys. I was away up north and a young man was engaged to drive me around. He was a fine, young man, I should say six feet in his stocking feet. One morning we had a very long drive, and at five in the morning we had our breakfast in the little log shack, with a little, smoky lamp on the table. As we were sitting there it was still quite dark, and I looked at that man and wondered what caused him to come into the service, and I put the question to him. He said "What do you mean?" I said "What did anybody say to you that made you want to come into the King's service?" He said "Nobody ever said anything to me." I said "Then tell me how you came to enlist?" He said, "I was a lumberjack, and I spent my winters in the woods, and I was last winter in the woods, and I was drawing my logs out to the town before the snow would get away. As I drove into the town I saw the men drilling on the streets, and when I delivered my load I put up my horses, and I walked up and down the street as long as there were any soldiers there, till very nearly dark, and then I went home, and the next morning I enlisted. I went home that night thinking." I said "What did you think?" He said "I thought there was something in the men in khaki that I did not possess." He got right at the root of it. He saw the nobleness and the sacrifice of the men who were willing to lay down their lives for their country, and he said "I will lay aside everything and I will obey my country's call."

Then I want to give you another instance of nobility. There was a little lad at one of my meetings and he came up afterwards and he said, "I want to enlist," and I said "No, you don't, laddy. How old are you?" and he said "Nearly 15," and I said "You go home and grow." He said "I want to go, I have been learning to bugle." He was a little chore boy, and he got up early the next morning and did his chores so that he would be able to talk to me. I told him that he was too young and that we did not want boys. I was not in that locality for some weeks, and then I met him in khaki and I said "You naughty boy, how did you get in?" He said "I bothered them and bothered them until they took me." I said "I admire your spirit, but I think you lacked wisdom." Then he came up closer to me and he said "It was all right for me to go. If I don't come home there is no empty chair in any home for me. There will be no mother's tears shed for me. I am a Barnardo Home boy." (Applause.) He is not the only one either. Then he got just a little closer and he said "Mrs. Parsons, if I go, perhaps one of your boys can come home to you." Ladies, that was a boy that I had met by the wayside and I don't know any time in my life when I felt so touched as I did by that little Barnardo boy who was willing to lay down his life over there that one of my boys might

return to me. Remember, these are the boys that we sometimes give the cold shoulder to, and we are apt to turn up our nose as we pass them by, and think that they are the scum of the earth. But when the call for country came, the Barnardo boys heard the call, and they have gone out from Canada to fight for home and country.

Now, we are coming to the place where we Women's Institutes have to look to things. What am I doing to prepare for things when the war is over? It is going to come to a victorious end sometime. You cannot expect that the world is going to go on just the same when the boys come back. It cannot be done. We must have a new world. We must have a new country and we must have some new ideals if we are going to make Canada worthy of the great sacrifice that has been made for her. We have been discussing some of the questions to-day. We find that 21% of the babies born die in one year and 37% die in five years. One-half die under the age of 15. Can that be stopped? Yes, if we only try. If we will only see that the mother knows how to care for the child. I remember when I first went out some of you said, "Don't mention things like that, it is not respectable." To-day we are facing these questions, because we know that we have got to face them, because we know that something has got to be done. We must have a different kind of education, we must train the child for the work he has to do in after life. Why cannot we start now? It just requires a little reconstruction. Do you realize how we have been led in this war? The big men have said, "Steady there, don't go too fast. We must see where we are going. It is going to work out all right." I was not a suffrage woman at all, I thought the time was not ripe, and I was quite surprised when we got it. The coming election is not open to all women. There are some people that we dare not let vote, and because there are some whom we dare not let vote there are some of you who won't be able to vote. The vote is to be given to the women who have given their men and their boys. You might say I have knitted socks and I have given money, but there never has been and never will be any sacrifice that will measure up to our flesh and blood. Because we have given of our men, we are to be allowed to vote, and those of you who have made other sacrifices won't mind that, will you? You haven't got the men to give, perhaps, or they could not go, but we did, and perhaps they won't come back.

We must hold on and we must be true and we must have every man in his place so that we can win the war. We must win. We are out to win, and if you can help it along, do so.

I want to speak of one other thing, and that is the churches. Do you think we are ready in our churches for the returned men? Let me give you an instance. I was driving through the country with a man who had been to the front for a long time, and he gave me a little of his experience. He told me that a shell came across and killed every man around about where he was except himself. They had been sitting playing cards, and when the shell came everything was scattered, and this man found that he was apparently the only man living of the lot. When he came to himself, at the end of the little table was a Testament with a khaki cover. He said "I took it up. It was not there before. I looked at the name on the fly leaf of that Testament. I don't know that I knew every man who was there, but I read on that page, 'A thousand shall fall on thy right hand and ten thousand on thy left hand, but they shall not come nigh thee: the Lord thy God shall have care of thee.'" He said he took that Testament into his hand and said "By the living God, I will live right." Ladies, are we prepared for these men who have faced death? We must open wide the church doors to them, and we must open wide the doors of our hearts

to them. These men that have been over there have not only come close to the devil but they have come close to God. Ladies, let us prepare for the days that are to come—the glorious days when the boys who have been victorious over the foe come marching home. Let us meet them with a smile, and let us be prepared to give them a brighter and better Canada.

MORNING SESSION.—NOVEMBER 22.

MRS. A. W. WALKER, R.R. No. 1, Bartonville, presiding: After listening to the reports presented last night and yesterday afternoon, I think we are all agreed that the past year for the Women's Institutes has been the most successful it has experienced since its inception. When the Women's Institute was organized, not so many years ago, it was regarded by many, particularly the men, as a fad, and many predicted for it an untimely end. But it is very much alive, and has grown and developed into one of the largest and strongest organizations of women in the Province. So much has it grown in the esteem of the public that to-day we are recognized as being a power to work, and everywhere we are constantly being reinforced by the best women in the land, because they appreciate the work we are doing, and, recognizing in us a patriotic organization, they are anxious to cast in their lot with ours.

We have at the present time an opportunity such as we never had before of living up to our motto, "For Home and Country." In addition to the Red Cross work which we have been undertaking since the beginning of the war, we are rendering valuable assistance in other ways. We are doing a great deal for our country by striving to conserve our food supply, and we can assist financially by investing in the Victory war bonds.

We are grateful to the Department for the assistance they have rendered us during the past year in sending literature and demonstrators in the canning of fruit and vegetables. I think a great amount of the vegetables grown in the country have been conserved by canning this year. We are also grateful to the Department for the generous assistance they are offering us along the line of medical school inspection; as yet very few branches have taken advantage of it. I believe the reason of that is because they think they have not time to devote to it; they do not recognize its vast importance, but the teachers in the rural section are beginning to feel this need, and the convention held in the city last Easter showed the need of medical school inspection, and its importance was clearly and forcibly impressed upon us.

We are to have a discussion on branch work, and this, I believe, we feel the need of. I think even the oldest branches have their difficulties, and by exchanging our experiences with the other branches we can go back carrying with us such information as will be helpful to our Institutes for all time to come.

BUSINESS METHODS IN BRANCH WORK.

MISS MCINTYRE, LUCAN.

We have our difficulties in carrying out our work. Of course we realize the necessity of having business-like methods carried on in the Institute. The first point is to have a good secretary, in order that the minutes may be recorded in a clear and definite form. The motions should also be made in a very clear and definite form, so that there may be no ambiguity whatever in the minds of the members as to what the motion calls for. Of course you all recognize the fact that the motions should be discussed before they are put to the meeting. We have found it a good plan to give time for discussion, because if the motion is passed quickly and is contrary to the wishes of even a few, it causes considerable trouble.

Another point is that each committee under the control of your Institute should be made responsible for some definite work, and we have found it a good plan to place at the head of each committee a woman of good executive ability, and one who is a favourite with the other members of the committee. We had a committee composed of the younger people who were responsible for the entertainment of a number of returned soldiers from Toronto and St. Catharines. We had about 20 girls, ranging from 16 to 25 years, on this committee, and at their head was a married lady of very great executive ability.

COMMUNICABLE DISEASE.

MAJOR J. G. FITZGERALD, UNIVERSITY OF TORONTO.

I am on the programme this morning to address you on the subject of "Communicable Diseases." I would like at the outset to point out that it is the desire of Mr. Putnam, your Superintendent, that I should limit my remarks to a very brief discussion, not of all communicable diseases, but of certain communicable diseases which have not received, up to the present time, the consideration which they merit and deserve, in view of their widespread prevalence and the great amount of damage which they do in the community—what is known as venereal diseases. Under this heading there are two communicable diseases which are very widespread—syphilis and gonorrhea.

So much has been said as to the exact incidents of these diseases that I just wish to say a word at the outset with reference to that particular point. No one knows how widespread they are. I wish you to get that point first of all. There is no exact method at the present time of determining the incidents of these diseases. The estimates which have been made of their prevalence have been based on examinations which have been made of public ward patients in general hospitals in Great Britain, United States and Canada. Before the war, the problem had seemed to be of such magnitude that it was deemed wise in Great Britain to appoint a Royal Commission to go into the whole question. Therefore, the year before the war a Royal Commission, under Lord Sydenham, was appointed to determine if possible the extent of venereal diseases and the best methods of grappling with them. The problem of dealing with these diseases and suggesting a plan for their control is much more difficult than would be the case in handling

any of the other communicable diseases, for two reasons: In the first place, there is a very natural reticence on the part of the majority of people in discussing these diseases, and in the second place, instead of there being simply a medical issue involved, there is both a moral and medical aspect. Therefore, there are differences of opinion more marked in these diseases than in any other, as to how the problem should be approached. We are all agreed, this is a very serious matter. In order to give you a rough idea of the incidence of these diseases, it has been estimated from blood examinations made of all admissions to the public wards of the largest general hospital in Boston, and one of the largest general hospitals in the City of New York, that from 10 to 15 per cent. of all patients admitted to the public wards were suffering from or had suffered from syphilis. In addition it is very definitely known that gonorrhea is perhaps two, three, or four times as prevalent as syphilis.

Sir William Osler has recently said with reference to the known results, that syphilis may be regarded as the third most important of the killing diseases.

To go back for a moment; it has been practically impossible until within the past five years to make it generally known how widespread these diseases are, and it also has been impossible to arouse public opinion to the point where any effective measure may be taken to remedy the further spread of the disease, to adequately treat those who are suffering from these diseases, and to develop a plan whereby people generally would be as well aware of the various aspects of this question of venereal diseases, as they are familiar with the problem of tuberculosis.

I wish to speak to you this morning not from the moral aspect of the question at all, but I wish to point out certain features with reference to the medical aspect.

In the first place, these diseases are practically always spread through irregular sexual relations. They have probably always been worse in times of war, and at this time it is well to correct a misconception which exists in the minds of a great many people, that the army is responsible for the spread of venereal diseases. The army is infected with venereal diseases from the civilian population or by the civilian population. The incidence of venereal diseases is higher in the civilian population than in the army population, and furthermore, we know every case of venereal disease that exists in the army, a fact that is not known in the civilian population, and the army makes a far better showing than does the civilian population. So far as the Canadian corps is concerned, Dr. Andrew Macphail, who for some time was in charge of the daily sick returns, found in the Canadian corps in France as many as 30,000 sick returns without a single return of venereal disease amongst the men right on the fighting line. The Canadians who are on the fighting line, fighting your battles and mine, have only developed venereal diseases because they have been exposed to more temptation than any man or woman might be expected to withstand, and they have been infected in the large centres of population where venereal disease is rampant.

But venereal diseases are not only to be found in the large centres of population; they are also found in the small rural communities. Dr. J. A. MacDonald, in a very fine editorial in the *Globe* a few weeks ago, pointed out that he had received a letter from a physician in a small Ontario town. In that letter that physician related some experiences that he had had in his practice, and it was pointed out in the editorial that owing to the easy means of transportation at the present time these diseases are not limited to the larger centres, as they might have been in earlier times. The problem may not be as acute as in Montreal or Toronto or the larger centres of population, but please believe me when I tell you

that it is widespread throughout the whole country, and that it is not peculiarly an urban matter; it is also a rural problem.

Since we are unable to deal with the cases, in civilian life, in an adequate fashion, even where we know where they exist, we want your assistance, and it is the belief of those who have studied this problem, that the most important single factor in solving it is education. Just as soon as all the people realize what the problem is and how widespread it is and what may be done to eradicate it, will effective measures be taken to stamp it out completely, or at least to a very great extent.

A word or two as to what might be done in an educational way. A few of us in Toronto who were interested conceived the idea of developing a civilian committee. We found in the United States, under the Council of National Defence, a sub-committee in combating venereal diseases had been developed. This sub-committee of the Council of National Defence is made up of medical officers of Reserve Corps, and all interested civilians. It really was the outgrowth of the activities of the national organization in the United States, the American Social Hygiene Association, which was organized to combat the ravages of syphilis and gonorrhea. We decided, if possible, to develop in Toronto a sub-committee to aid the military authorities in combating these diseases. That committee is divided into several sub-committees. We have a finance sub-committee, a legal sub-committee, a publicity and education sub-committee, and a sub-committee of women's activities.

In a general way, our programme is this: We believe there are four methods of attack on the problem which will probably yield fairly satisfactory results. First of all, social measures to diminish sexual temptations; secondly, the education of soldiers and civilians in regard to venereal diseases; thirdly, preventive or prophylactic measures against venereal diseases; and fourthly, medical care. Let us consider these various activities briefly.

Social measures to diminish sexual temptations. There is no single factor which is more important in decreasing the incidents of venereal disease than the development of places where men and women may meet together in friendly social intercourse and develop sane, healthy relationships. That was realized at once when we began to mobilize the expeditionary forces in this country. The fact was perfectly evident, and various organizations like the Y.M.C.A. and Y.W.C.A. and such like, at once undertook to provide rest-rooms, reading-rooms, and to develop the social side as much as possible, but I would like to point out after having seen the work at fairly close range that I think there is still an opportunity for very considerable extension in this direction. I believe a very great deal more can be done than we have done in the past.

It has been said, and I have found out within the last six months, that the very great number of boys who have come up here to train with the Royal Flying Corps during the summer have in many instances suffered from one thing more than anything else, and that is lonesomeness. While there are soldiers' clubs and Y.M.C.As., at the same time these boys have come away from their homes, they have not yet gone to the firing line, they are still in training, and they suffer from lonesomeness, which is the strongest possible ally of venereal disease.

A boy leaves home and goes a few hundred or a thousand miles to train. He has his circle of friends at home, and a home where he may entertain his friends, and he goes away amongst complete strangers. He spends his day in pretty hard active work, and in the evening what about it? He may be a boy who is so in-

interested in his work that he does not go out at all, or at all events, if he does go out, he goes to the ordinary form of place of amusement to spend a certain amount of time, but temptations exist, not only in the larger centres of population, but in all centres of population where many men are gathered and in training, and these temptations are so great that we know from the information which we have that a great many of these boys do succumb to temptation.

From a medical point of view, we do everything we possibly can to prevent their developing venereal diseases, and will continue to do so, but not all the opportunities for social intercourse which they might have and which might be developed in the community exist at the present time. Here is an opportunity for a little further extension of work by the women and men who have not the opportunity of doing the military part of the job.

Then the education of soldiers and civilians in regard to venereal diseases. We see to it that all enlisted men know about venereal diseases. We explain to them the nature of these diseases, how they are contracted; how they are spread; tell them about their gravity, how serious they are, and these lectures are given not once, but perhaps weekly or fortnightly, at least once a month, and we do not let it go at that. We do not simply issue instructions and leave it in that way. We have been able to develop in Canada, and I believe we have been the first to develop it, a special officer detailed for duty known as venereal officer. His duties consist of developing these lectures, arranging that the lectures are given, and, furthermore, seeing to it that they are given. In every unit, the medical officer reports to this specialist officer once a month, showing in a concise statement what he has done in an educational way for the officers and men in his unit. Therefore, we are not only developing a plan, but we see that it is operating and we keep a constant check on it.

Now, lectures to the civilians, since they are responsible for so large a part of these diseases in the army, are equally necessary, but they are not given, only very occasionally, not nearly as often as they might be given and should be given, considering the gravity of the problem.

Then we go further in the army. We not only instruct the men as to the nature of these diseases, warn them of the dangers of them, but, as I said a moment ago, we do everything we possibly can to prevent their developing these diseases if they do succumb to temptation and expose themselves, by means of what are known as prophylactic stations, where men may receive prophylactic treatment. At the same time occasion is taken to most strongly emphasize the seriousness of the conduct. We put it to the men in this way: We are not providing you with this prophylaxis in order to condone your conduct or in order to in any way lessen the consequences which you might suffer from: we do it because we do not want to lose you as a fighting unit. We have endeavoured to explain in every possible way and taken all possible precautions to point out the dangers of such exposure, but if, despite these warnings, a man does expose himself, then we are going to save him if we possibly can.

Do not get the impression that by the development of these prophylactic stations we are in a sense condoning these irregular sexual relations. It is not so at all, and some otherwise well-intentioned people believe that the development of such activities tends to increase the incidents of venereal diseases, if it gives a man the impression that he may so carry on and not suffer any unfortunate consequences. That may be true if that activity were separated from all other activities and was the only measure being developed, but please don't think of it in that way.

That is not the fact; it is simply one part of a well-developed programme; it is one cog in the machine, that is all. We believe by providing amusement, entertainment, and so on and by education, that we are only going to lessen the likelihood of men exposing themselves, but we know a certain number will, despite these things, and then we are going to take medical care to prevent their developing venereal diseases if that is possible.

Just a word or two in regard to medical care. The recommendation of the British Royal Commission that investigated venereal diseases is this: In our opinion the menace of the venereal diseases can best be combated in three ways: widespread education; ample, adequate facilities, easy of access for the diagnosis of these diseases, and proper measures of treatment which shall be accessible to all the people at all time; education, diagnosis and treatment, the latter two free if necessary. In order to give effect to this recommendation, the Local Government Board of Great Britain developed a plan for at once carrying it into effect. There never was such quick acceptance of the recommendations of any Commission as was the case of those of the Royal Commission on Venereal Diseases in Great Britain. The obvious explanation is that the gravity of the menace was realized, and it was deemed imperative that steps be taken immediately, and steps were taken and are now operative in practically all municipalities in Great Britain whereby under the auspices of the Local Government Board, through their local representatives, an educational propaganda is being carried on, and through local medical agencies, facilities for diagnosis and for treatment are now available.

In order that you may grasp in a general way how important that is believed to be, I may say that for those who are living at some distance from a diagnosis or treatment centre and cannot afford to pay their railway fare to the centre, their railway fare will be paid so that it may be definitely determined whether or not they are suffering from either of these diseases, and if they are, provided with proper treatment, three-quarters of the expense of which is borne by the Imperial Exchequer.

What can we do in this country and in this Province and in the various municipalities in this country to apply some of the measures which have been developed elsewhere, and adopt some of the recommendations and suggestions which have been made? In the first place, I believe in every community where there are organizations such as the Women's Institutes and so on, there might be a committee or sub-committee whose activities would be largely those for combating venereal diseases. Our local committee in Toronto, of which I have the honour to be chairman, and Captain Gordon Bates, of Toronto, is secretary, will be very glad indeed to co-operate with any centre in supplying lecturers or literature dealing with this problem, and in doing anything we can to aid you in solving the problem as it appears to your community. In addition we require some legislation. Of course if we do get legislation it will probably be of a public health sort, and perhaps some amendment to the Criminal Code, because at the present time it is impossible for us in this Province to isolate men or women who are suffering from gonorrhea or syphilis and are spreading it in the community. There is nothing at the present time which enables us to do that, and I think we should have machinery whereby we can isolate such cases. That is the belief of the General Officer of Health, Colonel McCullough, and many others, but we want all the people to think so and to realize that that is a good thing to do, and we want you to furnish the necessary support, so that measures of that sort may be not only passed by Statute or Order-in-Council, but when they are passed, that they will be carried out and will be effective.

A great many well-meaning people have said that these diseases should be made notifiable. If a person has the smallpox or diphtheria, etc., compulsory notification is demanded. Why not simply add gonorrhea and syphilis to the list of diseases where compulsory notification is required where the physician must report to the medical officer of health, and he in turn must report it to the Provincial Board of Health? It is not as simple as that, and the Royal Commission very strongly recommended against compulsory notification.

I took occasion to inquire in a great many cities and states where compulsory notification is in effect in regard to these diseases by letter to the Medical Health Officer as to the value of this measure, and when I summarized the replies I received I found in the vast majority of cases where compulsory notification was the law it was a dead letter. Compulsory notification alone won't do. You must first of all have education, and in addition we should have some measure whereby we can isolate and make provision for the proper treatment of those who are in an infectious stage and have more adequate facilities than exist at the present time for treatment. The very enlightened action of the Provincial Board of Health in the past six months in providing free facilities for diagnosis was a splendid step in advance. That has not yet been taken advantage of as widely as it will be later, though there has been a remarkable growth in the last month or two throughout the Province. I also know that it is the desire of the General Health Officer to provide more adequate facilities for the treatment of these diseases, and within a very short time a plan may be developed in this Province whereby, through education, through provision for diagnosis and provision for treatment, free if necessary, we will be seriously grappling with the biggest public health problem in this country to-day.

A MEMBER: May I ask why that administration in the United States is not enforced? What is the reason that the doctors do not report? Is it because of lack of backing from the Government that they do not report, if it is the law of their State?

MAJOR FITZGERALD: That gives me an opportunity to point out that a great many cases of persons suffering from venereal diseases are not treated by regular practitioners; they go to quacks and quacks have no standard, and of course do not report their cases. That is one of the greatest problems in dealing with these diseases, that persons suffering from them avoid the qualified physician, the majority of whom would probably report their cases. I would like to point out for the benefit of the ladies who are here that in this Province there is a law which requires that all births should be registered, and yet probably not more than 80 per cent. of the births in this Province are registered, so if you cannot get people to register the births of their children, you certainly will have a very great deal of difficulty in getting them to report diseases which they are ashamed to be suffering from.

Q.—Are not venereal diseases communicable in other ways than by sexual intercourse?

A.—Yes, but 99 per cent. of the cases are communicated in that way?

Q.—Is there any way in which the country woman, far away from military centres, can assist in relieving the lonesomeness of those in training, and any way that the Institute as a whole can assist.

A.—Yes. I believe there is. Of course the Canadian Expeditionary Force has been developed to a point where there is very little likelihood of very many more men being of service in these smaller rural communities, but I still believe that the Women's Institutes in these smaller rural communities have a great deal of work which they can do, even if they cannot at the present time do more than

supplement the activities which those in the larger communities may have to undertake.

Q.—Cannot gonorrhea be communicated to the eyes simply by rubbing the eyes with a gloved hand which has grasped a street-car rail?

A.—I think that may happen. Gonorrhea, which is responsible for a great deal of blindness in babes, is communicated from the mother to the infant when the child is born. That of course can be avoided if the physician in attendance on the mother simply takes the precaution to put a few drops of silver nitrate into the eyes of the child just after it is born.

I wish to repeat again, these diseases may be communicated in other ways, in this way, that way, or the other way, once in a thousand times, but the important point is that the diseases are usually not communicated in these ways.

Q.—Could a babe suspected of inheriting a venereal disease communicate it to others of the household?

A.—Yes, it could communicate it to others.

Q.—Don't you think the best literature to give our children would be to tell them the right way of life, and not keep them ignorant of things when they are children?

A.—I think the point suggested is extremely important; education should begin in every home; that has to be recognized as most important in dealing with this whole problem.

Q.—Some of us will have quite a few soldiers in our community, and we would like to do what we can to make them less lonely and bring them into our home social life if possible?

A.—If any one will write to me directly to the University of Toronto, I will be very glad to give them a satisfactory plan.

DR. HELEN MACMURCHY: The first question which occurs to you when you hear such an address as Major Fitzgerald has given is, "I wonder if that is all true? Those doctors who are specialists run off with their own little fad like a dog with a bone." It is all true. It is all true and more. And what is more, I know the lady who spoke a moment ago will be glad to learn and realize that there are two great reasons why it is now brought to light. The first is the conscience of the medical profession, and the second is the advance of public opinion in this Province. Even one year ago, at the last meeting of the Women's Institutes, I know Mr. Putnam would not have allowed the subject to have been brought before you, and I think many of you would have risen and left if it had been brought before you.

From my own experience and from the experience of other doctors, I know that practically the bitterest thing in medical work has been that we know things which we could not tell you because you would not let us, and because it would do far more harm than good to do so, and so it was no use. You see the first stirrings of public consciousness awakening along certain lines; they are willing to open the ear to what formerly they would not allow you to say to them. The most important lesson we can learn is to have patience and wait until the time comes for the advance to be made. If you move too soon you will put yourself back twenty years, sometimes a generation. If you wait until the opportunity is past, then, and quite rightly, everybody condemns you for cowardice.

The first thing I wish to very briefly draw your attention to is the importance of these diseases. Sir William Osler, who is the greatest modern medical authority we have, says, "Syphilis affects more families with that terrible taint and blight

than does tuberculosis." So you see how widespread it is, and yet I have something to say on the other side, and I hope to say it in a few minutes. You will observe that families carry it, as it were. Tuberculosis is not hereditary, but syphilis is hereditary. There is no disease which is carried on to the third generation except this dread disease, and that shows you at once how important it is. There is not only the widespread character of this disease, but there is this general fact: it takes about three years to cure a case of syphilis, and unless the treatment is thorough, although the symptoms may disappear for a time, the disease may reappear at any time, and it is extremely infectious, not only for the individual but for the race. If I had to choose between smallpox and syphilis, I would not hesitate a moment, and my choice would be smallpox; it is less loathsome and it is far less terrible in its effects and less dangerous to others.

But these effects are not to the individual alone, but also to the race. Take the question of infant mortality. Dr. A. Routh and others express the opinion on this subject that our infant mortality is doubled by syphilis, before the child is born. In the first year of life, in Ontario for example, about 110 babes die out of 1,000 born. Dr. Routh says, and this is supported by others, that there perish before birth at least an equal number, repeated and repeated and repeated miscarriages and abortions. Remember I say repeated, because one such accident, especially in a young mother who has not yet learned to be careful, has not at all the same significance; but where there is one after another, we always draw the one conclusion—syphilis. So you see that for the race it is awful, and so is gonorrhea. Gonorrhea prevents a mother having children, a mother that would, and well do we know it.

The third point I wish to speak about is the high communicability of these diseases. I entirely agree with Major Fitzgerald. There is no difference of opinion in the medical profession on this subject. The cause of the transmission of these diseases is the transgression of the Seventh Commandment. But there are other reasons: the Medical Officers of Health condemn the roller towel, the common drinking cup, and every kind of uncleanness. One of the ladies was speaking of the rail of a street-car. We generally wear gloves, and that is one advantage of wearing gloves. Never put your fingers in your mouth or rub your eyes with them. Many people are extremely afraid about toilets in common use. I would be careful about letting any part of the body, especially the mucous membrane, such as the lips, touch anything in common use, but precautions may be taken in all these matters.

There are the guilty and there are the innocent, but do not let us who have all sinned ourselves, one way or another, be too hard on the guilty, whose temptations may have been like the temptations of Pilate, that sweep you away before you know where you are. You have fallen before you know where you are, and then you are going down-stream, and going-up stream again is very hard, and it is not everybody who is willing to help you up, although I think all the women of the Institutes would if they knew.

I wish to say a word about the conclusion we should draw from the address we have just heard. The young girls who are present this morning, and who are the hope of the Institute, may feel as if their spirit is black and blue; they did not know they were going to hear this, and always had a sort of horror about something they did not know much about. If you are overwhelmed with the feeling of this terrible situation, we offer to you this consolation now that you are coming to be a woman and a voter, and very likely the possessor of a Victory Bond and all the

other enrichments of life. Many things that are good come out of evils. If it had not been for the war we would not have been awakened to this social problem which has lived through all ages and in all civilized countries. But you had a sort of indistinct feeling that people had to be careful about such things, and now we will show you how to avoid and conquer them. Secondly, I wish to say to you to cheer up, for things are no worse now than they were when you came into this room. And, thirdly, I want to say don't be too merciless. The Major has reminded you very wisely that this is not a military problem, but a civil problem, but I say without fear that I believe in this audience and in the Women's Institutes this evil is absolutely non-existent. This problem will be met and solved, and it is not nearly so bad as you might think from listening to the Major and myself. Sometimes we drive away by our heartlessness those who might have confided in us and whom we might have saved.

The third reason for cheering up is the position we are in now. Thank God, we do not have to act in the dark about this thing. Within the last five years, or perhaps a little more, we have learned of the organism which is responsible for these diseases. We have the Wassermann test, and we know right away whether it is that disease or whether it is not; and, third, we have now drugs which are perhaps ten or a hundred times more quick in action, if you can use them, than we used to have, so that the treatment does not have to be carried on for three years. You will never know how physicians of older generations stood between the people and disaster, and often told a man, "You must not marry for the next two years," or "You must never marry, until I give you leave," and most of the men they told that to did what they were told.

I think this reminds us once more of the extreme importance of happy family and home life. These things are not suitable to tell to children. There would be no use in it. What we want to do is to bring up our children sweet and pure and happy, and trusting in us, and then they will never go down the wrong way.

It is the opinion of medical authorities that prostitutes in at least 50 per cent. of cases, perhaps 70 per cent., are either high-grade or low-grade mental defectives. We shall never conquer these diseases until we take care of these mental defectives, so that they won't go to that awful occupation.

The next thing I want to say to you is to help the Medical Officer of Health in your localities. The second thing is to interest the legislators, and you can do it now. Say to them, "The Government last year gave \$2,000 to help in this investigation; we ought to have about \$10,000." Just pass the word that all the women are in favour of granting money for public health purposes, and particularly for abolishing communicable diseases; and, thirdly, we should do everything we can to increase the number of homes and help our boys and girls to have homes of their own before they are twenty-five. Making lovely, beautiful and happy homes is going to be the greatest defence of all against this and all other medical and social problems.

THRIFT IN PURITY.

DR. MARGARET PATTERSON, TORONTO.

We talk of our wonderful natural resources and of their conservation, the importance of developing them so that they will be of the greatest benefit to the country. All this is as it should be, but, important as these material things are, how much more important to the development of our country is the attitude of mind of its people. Yet how little thought is given, or preparation made, for conservation of the purity and reverence with which each child begins life.

A short time ago I heard the statement made that "A lack of reverence was the curse of the age," and various reasons were given as the cause of this lack of reverence, viz.: "Sudden increase in wealth and the resultant selfish pleasure seeking," etc. Undoubtedly these things are contributing factors, but not the fundamental cause.

The real cause of this lack of reverence is the lack of truth on the part of the parents and guardians of children. Too often the children are either totally neglected, or wilfully deceived by those whose sacred duty it is to safeguard their purity, by giving them a knowledge of God's wonderful plan of life: thus conserving the innate reverence that every child possesses.

It is one of the most hopeful signs of the times that so many of the world's greatest scholars have given themselves to a study of child life in its various branches. Great has been the gain in conservation of the children, the nation's most valuable asset. The physical, mental, and moral side of child-life have all been the subject of much study, and we all recognize how much medical men have accomplished in the understanding of the child, its necessary food and care, and how much has been done to stamp out many of the diseases that once were such a danger to children, and to remove many of the physical handicaps from which they often suffered.

No one doubts the advance made by educationists in understanding the mental capacity of the child, and presenting information in a form to-day that is more easily absorbed by the child's brain than was the case a few years ago.

The moral and spiritual side of child-life has also been the subject of much study by experts on child-life, and in this line too much has been accomplished. If we, as parents and guardians of the children, are going to be in a position to give to our children the benefit of to-day's enlightenment we must give some thought and study to this subject.

The "let alone" method of teaching life truths has had its day, and has proved itself a failure.

This method arose partly from indifference, chiefly from mock modesty and a wrong attitude of mind on the part of the teacher. The whole trouble arises from the fact that the average parent thinks the question of sex is involved in a frank and truthful answer to the child's natural question, i.e., "Where did you get the baby?" or "Where was I before I came to you?" This is the stumbling block, and is all wrong: for the question of sex does not enter into a truthful, scientific explanation of God's great plan of reproduction.

Our trouble is, that we have substituted a fabrication that is an insult to any child's intellect in place of God's beautiful truth, and the price that we are paying is the lack of reverence that is cursing our nation to-day.

If we but pause to consider: is it not absurd that we should punish our children for telling lies, and yet deliberately tell them lies ourselves? "Thou must thyself be true if thou the truth would'st teach." We have prepared ourselves to take a certain amount of care of the physical and mental side of child-life, and we must not neglect the moral and spiritual. The important part in teaching a young child is not so much to impart knowledge, as to answer frankly and truthfully its questions, retain its confidence, and prevent that mysterious reserve that leads to morbid curiosity, and gradually separates parents and children.

The important thing is to establish in the mind of the child a reverence for God as the Creator of all things, and at the same time to give a truthful, scientific explanation that will satisfy the developing mind. In order to do this, it is only necessary to get a pot of earth and a package of seed. Show the child the picture on the package and state the truth, that "all life comes from an egg." That in the beginning God made everything, and then He gave to each thing the power to reproduce its kind by means of its egg. That we have here the eggs (or seeds) of the beets (or whatever seeds you have chosen), and we have here in the pot of earth the kind of nest that it is necessary for the beet eggs to be put in, to let the baby beet inside the seed grow big enough and strong enough to come out of the shell, and get its food from the earth and grow up to be just like the parent beets.

It is always well to go right on (and, in the country, or where it is possible to do so) to set a hen, calling attention to the kind of nest needed for the hen's eggs, and that the mother hen has to sit on them for weeks to keep the eggs warm until the baby chickens grow big enough and strong enough to come out of their shell.

Be sure that the child notices the fact that almost as soon as the chicken gets out of the shell it is able to run around and pick up its food. Children are always reverently interested in this simple, true explanation of the reproduction of life.

I know of one little boy who was so delighted when the chickens were born, that he came to his mother in glee and exclaimed, "Now, mother, let us set kitty," meaning the cat. All children will not say this, and it is not wise to wait for them to do so. Go right on with the beautiful story, remembering always to keep uppermost in its presentation that it is—*all of God*.

Say to the child, "See how good God is, and how careful of each thing." It would never do if kitty had to put her eggs in a nest and lie on them for weeks to keep them warm. a dog might come along and chase her and the eggs would get broken: or the rats and mice would destroy lots of things if kitty could not leave her nest to hunt them. God knew all this, and so put the nest for kitty's eggs inside of kitty's body, and when God is going to give kitty a baby he puts the eggs in this nest, and there they are kept warm, and fed by kitty's blood until the baby kittens are big enough and strong enough. Then God causes kitty's body to open and the kittens are born. When the little kittens are first born they cannot see and are not able to run around and hunt for their own food, so God causes the food for them to be provided by the mother-kitty's body.

Now say to your child: "That is the way God sent you to me, and the way all babies of every kind come into the world."

Q.—Do you not approve of sex hygiene being taught in the schools?

A.—Yes, I do in a certain way. I do not approve of it being set aside and labelled "Sex Hygiene," but we can include sex hygiene in physiology.

Q.—Do you not think it advisable to make it compulsory for a man and woman before marriage to present a health certificate, certifying the absence of venereal disease?

A.—That is a subject to which we in the National Council of Women have given a great deal of attention. We have already petitioned the Government that this should be done. We asked it some years ago, probably a little before public opinion was awakened to this subject. I think there is no doubt but what that is coming when people realize the seriousness of these diseases, and the consequences of people marrying while there is any taint in the blood, but there is no use legislating ahead of public opinion.

Mrs. McPHEDRAN, Toronto: My object in asking for a few minutes this morning is to extend, as Convener of the Ontario Red Cross Sock Fund, our sincere thanks to the members of the various Institutes who have so magnificently helped to provide socks for the soldiers. There is no government in the world that could provide sufficient socks for our men; that is beyond a question. It is the custom of women in peace as well as war to provide for the convenience of their men, and even if they are not related to us by ties of blood, every mother-heart feels that the soldier is more or less her own boy.

You will be interested to know this sock fund began in a very small way in December, 1914. Another fund conducted by Miss Petie, for the French, and the University Hospital Supply Association, these with our Ontario Red Cross Sock Fund have sent out, up to the end of October this year, 74,365 pairs of socks. But it is not a large number, when you think of the many soldiers who are in much need of this comfort. We should remember the injunction, not to weary in well doing. The regrettable diminution of Red Cross supplies is no doubt due to the unusual burden laid upon everyone's shoulders by the lack of labour, but when the war is finished, we hope to be able to feel that we also have not done less than our boys, and with wearied spirits and more wearied bodies, we have done all we could to keep our men comfortable. So I appeal to you, ladies, to continue in the good work, and to let us have as much knitting as you can.

I should also like to make a little appeal for financial aid. The Red Cross has undertaken to finance this fund, but we will be so glad if the Institutes will send us what they can. The Red Cross is forced to buy wool in a constantly rising market, and one of the managers at Eaton's told me the other day he would not be surprised to see wool for the socks \$5.00 a pound. It is going to be a serious situation.

May I ask your co-operation also on another subject which is very near to my heart, and to every woman when she thinks upon it, and that is for the prisoners of war in Germany. The prisoners of our allies are suffering greatly, and it seems to us that these men suffering in our cause should receive from well-fed, comfortable Ontario a very distinct addition to their fund at Christmas time. At Christmas time let us deny ourselves some small pleasure, and send it to these men, so that we shall not deny ourselves the blessing, "When I was sick and in prison, ye visited me." (Applause.)

DISCUSSION ON PREPARATION OF PROGRAMME.

Miss SWAIN, West Durham: This year we did not prepare any programme, but perhaps I can tell you what we did. We were organized two years ago, and we now have a membership of 60, with about 21 girls. One of the girls is our secretary, and another one our vice-president. Much enthusiasm and inspiration in our Institute has been obtained through members attending the Toronto Convention. About six members attend each year, and two bring back reports. These two have their expenses paid, but the others pay their own.

Delegate from Fenwick: We have a committee of three that drafts the programme for the year without consulting any members. That programme is read at the April meeting, when objections are heard. It is read again at our annual meeting in May, and then printed and posted to every member, and we have splendid programmes every year.

MRS. GRAHAM: We have two directors appointed for each month, and they are responsible for the programme for that month. We used to have a yearly programme, but sometimes events would turn up we would like to discuss, and then we would have no time for them.

MR. PUTNAM: The Institutes are too progressive to prepare complete programmes a year ahead. These are such uncertain and strenuous times that we must bring in up-to-date subjects from time to time. If I had to prepare my convention programme even six months in advance, you would not have such good conventions, and while it is well to plan for a part of each programme months in advance, it is well to leave room for contingencies which might arise.

Delegate from Haldimand County: We have a county programme, and with our 25 flourishing societies that has been a great success.

RESPONSIBILITY OF OFFICERS.

MISS HISCOCK, Haldimand: The responsibilities of branch officers are many. To them is delegated the duty of organizing the community into an efficient working body. To begin with, the community must be interested. The officers are in a large measure responsible for the harmony of the organization; they must see that persons get into the right place, where their energies will be most useful, and see that each and every one has a part to play. Be on the alert to avoid clashing, foresee difficulties, and smooth them away, and use every opportunity that arises to effect harmonious work.

In our Caledonia Institute, we do not change our officers every year as we formerly did. Each one knows her work thoroughly, and we find the Red Cross work and other work is done more efficiently. During the past year we have spent \$3,500 in supplies for Red Cross work, and I might say this amount of money has been given almost altogether voluntarily. The Institutes and Red Cross organizations of the County of Haldimand have undertaken to supply the sons of Haldimand overseas with one pair of hand-knitted socks each month, under an organization called "The Haldimand Sock League." This has been most successful; 8,753 pairs of socks have been sent direct to the boys in the trenches this year. Caledonia's part in this is supplying 200 pairs a month to the Haldimand Indian boys. In addition to this, we supply trench parcels monthly to 130 men who enlisted from Caledonia and surrounding country. This work can only be done through the earnest endeavour of our good and capable branch officers, and right here I may say we have five clubs working under the Institute in the surrounding district, and two in the village. We have a club of girls from 12 to 16 years of age, whose work is to raise money by assisting at the fair grounds and doing fancy work, and sewing and things like that. Town and country are co-operating together as one, for work for our King and Country. (Applause.)

LOCAL AND OUTSIDE TALENT.

MRS. STINSON, West Victoria: Our Institute is in a flourishing condition at the present time. We hold our meetings at the different homes and serve a light lunch. To use our home talent to success, we have printed programmes of the year's work, and in planning these programmes, the committee does not ask anyone if she will take part, but simply puts her name down, and we are seldom disappointed. We try of course to choose the one best adapted to write on each topic. Also the question drawer is a help to all.

In order to secure outside talent, we frequently invite in another branch, asking them to supply the programme. In this way we become acquainted and get in touch with the work of other branches. It is a very good plan to have discussions after a paper is given. It makes us feel more free, broadens our views and impresses the ideas on our minds.

THE WOMEN'S INSTITUTES OF WESTERN CANADA.

MRS. J. MULDREW, DIRECTOR OF DOMESTIC ECONOMY, CANADA FOOD BOARD.

In the greater part of Canada and in part of the United States, they have followed the lead of Ontario in the work of the Women's Institutes. You have that to your credit. We, of course, have followed you, and when I bring you greetings from Alberta this morning, remember that we are trying to do some of the good work that you have been able to accomplish in Ontario. We have, of course, had to adapt it to our big province, our big, wide, lonely province, because Alberta is not thickly settled as you are here in Ontario, with your close neighbours and communities and all your interests that embrace so many women; but often in widely scattered areas where there are only a few women, sometimes they will organize. When one inquires about their possibilities of organization, they say, "There are only five women in the district and they cover 50 square miles," but they do organize wherever they have enough women to come together. Here and there, in 1912, there were a few scattered Institutes organized by the women on their own responsibility, women who had been members of the Women's Institutes here in Ontario. To-day, five years since the commencement, there are 175 Institutes, and they expect to make it 200 before Christmas. It means five years of progress, five years of the lessening of loneliness. You people here do not know anything about being lonely, about living in a place where you do not see another woman twice in a year.

I remember one woman telling me she went into a shack away out on the prairie, and the woman rushed up to her and put her arms around her neck and cried like a child. She said, "I have not seen a woman for six months." That was part of the work that enlisted the sympathy and drew the co-operation of the Department of Agriculture when they wished to give to the women of Alberta the Women's Institutes.

I would like to tell you if I had the time something about our annual convention. May I give just a little touch that happened at our last convention? We have added this year to our Women's Institutes, the great north land, the Peace River District, all the valley drained by the beautiful Peace River with its tributaries, a great lone land. At the last convention we were sitting on the platform and the president called for reports, and she held up the paper and said, "Shining Bank."

Away from the back of the hall rose a whitehaired, little woman who came toward the front, and she said, "I had no idea that I was to bring a report here. We are a little place 25 miles from the railway, and I just had time to catch the train." Then she went on to tell us, that they were women from the United States; only a few of them knew anything about farming. "But we all know how to make a good time together, so we have organized our Institute, and we have community life. When we found out we could do anything we liked, we cast about in our minds to see what we could do to make our community a better place and a finer place for people to live in, and the first thing we decided to start was a cemetery." That little woman was the dearest little woman with a face like a benediction, and she said, "You know there have been no natural deaths out there, but in that lonely land some of the engineers and some other men have been drowned, and it seemed so unutterably lonely that any man should be buried in that great wide land without any sleeping place, so we held a pie social to start the cemetery." I have not heard any reports like that in Ontario, because you do not need to do work like that here.

Two years ago at our Women's Institute Convention, we brought in the first resolution, the first movement toward bettering the conditions of the women in the country, by asking the Government to assist us in getting nursing help for the women in order to conserve human life. We got the law on the Government books last year which provides for the establishment of municipal hospitals here and there in the Province of Alberta for expectant mothers, to save the life of the little ones who are so precious to us in the West. So many have been lost, and so many mothers have sacrificed their lives because they have not had the proper care.

At the passing of the Equal Franchise Act, it just so happened that it was to be passed on the afternoon of one of our meetings, so we adjourned and went up to the Parliament Buildings and were able to have seats in the gallery in order to see the passing of that remarkable Act which gives to every woman in Alberta absolutely the same privileges that the men have in Alberta for the franchise. We may have a woman for Member of Parliament or Premier if we can put them there, and to-day we have two women in our Legislature as a result of that Act, Mrs. McKinney and Miss MacAdam, a nurse at the front whom the soldiers overseas voted as their representative. We have in the West public-spirited women, and they will all be needed in that new life. You ask me why? Because Alberta is not like Ontario. You have here and there and everywhere different nationalities, but you have not great blocks of foreigners. We have Galicians, French, Austrians, Doukhobors, and any number of Finns and Germans. We need to be wise in our dealings with these people. A young man went out to teach school in a foreign district, and he was hungry for news. His mother sent him *The New York Times*, with its beautiful illustrations, soldiers in uniform and other pictures. He took them to school and showed them to the boys. What does your boy nine years of age know about the nation's life. What does he know about national traditions, about anything except his play, and toys and dog? This teacher showed the picture of a man in uniform to a little Finn, nine years old, and he spat upon it. That is the attitude of that kind of people to authority. We have to assimilate all these people, and it is up to the British-born men and women to make of them good citizens. You cannot make of them good citizens unless you give them good ideals. Some of the things we have to fight against in all this land are our false ideas of politics. We have thought that you had to have two parties fighting each other, but we have to get away from that, and is it too much to hope that the women won't drop into that

pit but will keep themselves as far as possible free from it, to help to lift the political life in Alberta and Canada?

So much for Alberta. I was released from my regular duties in Alberta to come down here and assist in what measure I could in the work of Food Conservation, and the department to which I have been asked to give my energies is the Department of Food Economy or Domestic Economy, working with the women's organizations and the women in the home, doing what we can to help to make the homes assist in winning the war. The work that has fallen to us as women is no inconsiderable work, and I would like to devote to-day a little time in telling you something of what has been done, and something of what you and I might do.

See page 29 for paper on Food Conservation, which covers the addresses given by Mrs. Muldrew at the Ottawa, London and Toronto Conventions.

AFTERNOON SESSION.

MRS. W. R. BROWN, CHERRY VALLEY, PRESIDING.

The chairman presented the following report for Prince Edward County:

YEAR, JUNE, 1916, TO MAY, 1917.

Branches	13	Members	711	Increase	74
Meetings	146				
Attendance	4,255	Increase	1,204		
Number of papers and addresses					
Cash raised in district				\$109	71
In branches				7,380	90
Total				\$7,490	69

CASH SPENT IN RED CROSS AND SOLDIERS' WORK.

In district	\$20	00
In branches	6,785	21
Total	\$6,805	21

Made 11,254 articles, and sent through Institutes 8,725 pairs of socks. Many more pairs were sent by individuals to friends among the soldiers.

Cherry Valley: Largest number of members.

Wellington: Raised the most money.

Pictou: Ships the most, as many Red Cross helpers send in to the Central Work Room.

The Institute is "no wheel of fortune," for no matter what interest we put into the meetings we are sure to receive a two-fold benefit. All of us must remember that each day is a round in the ladder of life, leading to perfection. Much more benefit could be received from the Institute meetings if *every* member would work. Luckily, everyone cannot do the same thing and this is just what makes it so possible for each meeting to be made most beneficial.

There is no home but what has literature enough within its doors that some clipping can be found to bring to the meeting for the roll-call. It only takes a few

minutes to read this and thus new thoughts are put into our minds. Indirectly you have been benefited by looking these up.

It seems to me that when a programme committee takes time to arrange a programme and put your name down to take a share, it is not courteous not to take your place or furnish a substitute. Excuses are not accepted; it takes no more time for one than for another. Supposing you are down for what is not the talent you are capable of doing; come along with what you can do and I assure you it will be gratefully received.

Someone has said "Endeavour qualifies, trying equips." The very effort to achieve fits one for achievement. Power comes not to the passive who merely wish for it, but to the daring who undertake new enterprises. So let us each one do our part in the Institute, so that no one can come near us without being greatly benefited. And thus may our work in life take on a new dignity and we be enabled to say with Henry Van Dyke:

Let me do my work from day to day
In field or forest, at the desk or loom,
In reaming market place or tranquil room;
Let me, but find it in my heart to say
When vagrant wishes beckon me astray;
This is my work, my blessing not my doom.
Of all who live, I am the one by whom
This work can best be done in the right way.
Then shall I see it not too great or small
To suit my spirit and to prove my powers,
Then shall I cheerful greet the labouring hours
And cheerful turn when the long shadows fall
At eventide, to play and rest
Beause I know for me my work is best.

VISITING THE BRANCHES.

Mrs. GOULD, Fenelon Falls: I have had the honour of being District President for six years, not that I want to hold the office. I try to back out every year, and I would like to ask, would you get out of office when everyone who is nominated simply won't run, and you either have to see the work that you have accomplished suffer a set-back or go on for another year?

(Voices: Go on.)

I can safely say our work has been increased 50 per cent. by our patriotic effort.

In regard to visiting the branches, I have always found it better to take our travelling expenses, and I can assure you in East Victoria there is no chance at all of the officers profiteering in any way, because we have a grant of only \$27, and the County Council give us the huge sum of \$10, and we pay our secretary \$20, so you can figure for yourself how much we have to get along with. We have nine branches, and we decided, in order to keep down expenses, that our Secretary, who lives in Bobcaygeon, would do the financial part of the work: I, who live in Fenelon Falls, would do the visiting, and our Vice-President, who lives in Kinmount, would visit those places more convenient for her. In that way we have saved a great deal of money.

But you may rest assured we have been appreciated, and our County Council recently gave us a handsome advance in the grant without our asking for it, so they must consider we are doing good work in our district. I visit the branches when they

send for me when they are going to have something special. I am in some branches perhaps twice in a month, because I can go in my own car. I have yet to hear the first fault-finding in our branches with regard to the finances in visiting the branches. Sometimes they write: "If you have not money, we will advance all the money you want, but we want you to come and visit us." The branches seem to like us to visit them, if only for a few minutes, but we keep down our expenses as much as possible.

MR. PUTNAM: The visiting of the branches by the district officers throughout the year should receive consideration at the District Annual and some understanding arrived at as to the amount of district funds to be utilized in bearing their expenses. The officers should be guided by the action at the District Annual in regard to this matter. It is unwise to use any considerable portion of the district funds in this way. It is not expected that the officers will receive pay for their services in visiting the branches.

In some districts it is possible for the district officers to visit every branch with very little expense, getting home at night in all cases. In other districts, the President has to leave home the day before and possibly cannot get back until the day after the meeting. In those cases she should have the consent of the District Board of Directors, or the executive at least, before she incurs heavy expenses in connection with the work.

WHAT THE WOMEN'S INSTITUTES CAN DO TO HELP IN THE PUBLIC SCHOOLS.

DR. H. H. BURGESS, PUBLIC SCHOOL INSPECTOR FOR GREY COUNTY, OWEN SOUND.

Among the forces that are effective in the life of the land that of the school is one of the most potent. I suppose the life of a people rests on a tripod of power. The School, the Church, and the Home all get under the life of this land of ours and keep it. Of these three, the School is the one in which we are interested at present, and the rural school particularly. The rural school is a big problem, and is part of the rural problem that has to be solved. There is a decline in rural population from one cause or another, and some means must be found to keep the young people with brains on the farm. From 1901 to 1911 the rural population in Ontario decreased by 52,184. In my own inspectorate the rural loss was 21 per cent., while the townships of Sarawak and Keppel lost 48 and 34 per cent. respectively. In the same ten years Sarawak abandoned 45.8 per cent. of its homes, and the fine old county of Huron actually lost 25,900 people from 1875 to 1913. The rural problem can not be solved by any one agency, but better pay to the farmer for his products, better homes and better schools, will be potent factors in reconstructing social conditions.

We believe we have an excellent system of education in Ontario. For very many years we have been saying it is the best on the American continent. Our teachers are trained in our Normal Schools and at the Agricultural College. Heretofore, the trend of the teaching in the rural schools has been too much away from rural life. A course in the Collegiate Institute or High School has been held up to the pupils as the aim of their public school course, and the High School has in view for its students a course in the University. The rural school should prepare definitely for rural life as well as for the learned professions, and be associated with the Agricultural College as well as being linked up with the High School and University.

To accomplish this and other necessary improvements, the first great need is to get some kind of public sentiment behind the work of the country school, and I believe the Women's Institute is the organization that can create and lead public sentiment in favour of better schools. Women have amply demonstrated in these stern days, these days of anxiety and suffering, their capacity for leadership, their willingness and ability to discharge any responsible duties undertaken by them. I do not know whether women are eligible to be elected as members of a rural school board or not, but if not, just agitate and agitate till you get your rights. Then, and not till then, I believe the rural school will get a square deal in the matter of improvements that mark the community, and many, if not all the un-sanitary conditions of the school-room and outbuildings, the dirty and once-a-year washed floors, the bare walls and tattered window blinds, the rusty stove, and the tottering, rustier stove pipes will be a thing of the past if women were elected school trustees. Of course we are making some progress from year to year, but oh! the slowness of it in far, far too many sections. In too many schools the same old weary, uncomfortable seats are still there for your children, only more uncomfortable for their tender years, and no doubt are retained as a memory of years gone by. We all can let our thoughts wander back in fondness, even as Whittier does:

Within the master's desk is seen
Deep scarred with raps official,
The warping floor, the battered seat,
The jack-knife's carved initial.

The charcoal frescoes on the wall
The door's worn sill betraying
The feet that creeping slow to school,
Went storming out to playing.

And so it is. We live in a world of change. Only the human remains the same. Our schools have improved since young women have taken charge, and will improve much more when mothers have the say on school boards.

I need not say anything about medical inspection in rural schools. That has been done for you by medical men or women, and has a place on your programme. The results of inspection where made show how terribly handicapped defective children are in obtaining an ordinary education. Impaired vision and hearing means a weakened ability to do school work. Boys and girls suffering from enlarged tonsils, adenoids, caries, etc., are incapacitated by reason of these very defects from realizing the best that is in them. It is found that the most of children that suffer from these disabilities are from two to five years behind normal children in their studies. Your Institutes have made a beginning, and through your perseverance, it will not be long till all our schools are regularly inspected. The Bognor Institute, in Grey county, made a beginning this fall, but I have not yet heard the results from the report of the medical examiner.

I want to draw your attention to another very serious evil in our rural schools, it may be in your school, an evil that you can do much to remedy, though you may not be on the school board. That is irregular attendance. There is a danger in the future in Ontario for the boy on the farm. If there is any work to be done at home, the boy is kept out of school, and often for small trivial things. A very large number of our boys never get beyond the Third Book. The school is there with good equipment and a trained competent teacher, but the boy is not there. In the meantime he is growing upward, he lags behind his class-mates, and he drops out of school. The majority of pupils in our Fourth Book classes are girls. It is

the girls that are going to our High Schools in increasing numbers from year to year. The result is that the girls in our country homes are being better educated and trained than are the boys. And these girls will not seek their life partners in the boys of the country, because they are not as well educated and trained as they themselves are. The loss of these educated young women to the country and rural life will be a serious one. A well-grounded education is of special importance in relation to the present generation of school children, as they will have increased obligations to fulfil on account of the loss of so many of their elder brothers, and because they will grow up in a new Canada and a new world. The Canada after the war will find many of those who will reform conditions among the children in the schools to-day. No doubt many of them realize that they are living in a great age, and that they must play a great part in the days to come. An English inspector of schools had a large number of children write a composition on "What we can do to win the war," and found the gist of the answers to be: "We children will have to put this country right after the war, so we must work hard and get a good education." Yes, the children of to-day will be the builders of to-morrow, and the school is the regularly acknowledged channel through which they will receive training, information, and direction.

Then I would like to commend to you the encouragement of school play and games, a feature of school life that is sadly neglected. Organized school games would be a strong antidote to irregular attendance. Play is a natural instinct of all healthy children. The uncared-for school grounds should be enlarged; if necessary, laid out and supplied with swings, teeters, basket ball, croquet, etc. The cost would be more than compensated by increased attendance, awakened mental activities, and more real progress. There are many other things in which your Institutes can lend much assistance and thus help on the improvement in your own school. The school is the home of your children for five days in the week, and forty weeks in the year, for eight or ten years of their childhood.

In conclusion, the Women's Institutes throughout the Province have a great field of opportunity to reach for higher ideals, and you will do well to give the school a place in the work of your Institute, and tackle the buildings and the grounds. There is not a rural school that should not be as good, if not better, than the average home in the section.

A MEMBER: When any resident ratepayer being a British subject, or any resident farmer's son, can be a trustee, I want to know why any farmer's wife would not make a better trustee than any farmer's son 21 years old?

MRS. BUCHANAN: Madam Chairman and Ladies,—Putting a boy of 21 years of age before his mother belongs to the old regime, and we are thankful that all this is passing now. Besides getting votes in the Provincial Government, and besides those ladies who have sons and brothers and near-of-kin at the front getting votes in the Dominion Government, we are also getting votes for the School Board, and, more than that, we are eligible to act on the School Board, provided we have certain property qualifications. The thing is to get a woman to take the lead. Dr. Burgess hopes the women will go to the annual school meeting. It takes a bold woman to step forward and take the lead. At the first Institute meeting ever held in my neighbourhood, there were no women present. At the next, "Me and me little girl" and a friend of mine were the only three women there, but now there are more women than men, and that is what there is going to be in other things, in the Provincial Elections and Dominion Elections and on the School Boards, but it takes a bold woman to take the lead. Let us all turn out and fill the next annual school meeting and put women in the place where they ought to be, because in the

future this country is not going to be governed without women. We are taking our place now, and we are not going to go back. I ask you all to go to the next annual school meeting and vote for the right trustees, and be sure to put a woman in.

MR. PUTNAM: I discussed with one of the representatives of the Department of Education a short time ago the activities of the Women's Institutes in regard to school matters, and reference was made to the fact that the Women's Institutes in a certain district had published in the local press a statement as to the conditions existing in the schools and the need for certain improvements, that such and such things must be done, and that they were going to do so and so. It is advisable, instead of publishing what you are *going to do*, to appoint a committee, go to your trustees, discuss the conditions frankly and freely with them, co-operate with them and give them your assistance, and then publish in the local press what you *have done*. I am sure that the women will take hold of school problems in a business-like manner, and so far as the Department is concerned, we will be glad to co-operate with you, through a committee of the Women's Institutes, in undertaking some definite campaign in regard to improvements in the public schools.

DR. BURGESS: I have a school where I wanted new seats for the little children, and I met the trustees and asked for this. I talked for half a day with them, and they agreed to put new seats in. Well, they have put in half of them, and they said they would put the rest in again, but that is three or four years ago, and this year they are not going to get any money until they put those seats in, if I can prevent it.

A DELEGATE: Has the inspector of public schools any jurisdiction to improve the conditions of the schools?

DR. BURGESS: The inspector has no authority to authorize the expenditure of any money. He can withhold the grant, but he cannot authorize the expenditure of any money.

Delegate from Lincoln County: In Lincoln County we have been looking after this work more or less for the last five years, and we find in some of our schools that the conditions are still very bad, but in others we have met the School Board and talked matters over, and things have been fixed. There is one school, I understand, that has a furnace in the junior-room, and it has been there for five years at least. Is it possible to withhold the grant from a school like that?

DR. BURGESS: I would certainly withhold the grant.

Q.—Is it within the Inspector's province?

A.—Yes, if he will do so.

MRS. GRAHAM: Might I give Dr. Burgess one point. The reasons why girls in the country districts are better educated than boys is because the mother will crawl on her hands and knees before she will keep her girls home, but the father will keep the boys home for anything.

A DELEGATE: One thing that is drawing the boys nearer to the school and giving them a higher respect for their principals is the Rural School Garden, and it is drawing home and school closer together. That is very marked in our community.

DR. MACMURCHY urged the women to attend the annual school meeting, suggesting that they make a regular picnic of the occasion. If there are any good clothes left they should be brought out on this occasion, because it is wonderful what a difference it makes if we all come well dressed. And I would not think of going alone. I would say to every gentleman in the household or in the connection, "You will have to drive me; I really would be afraid to manage the motor alone." Anything to take him with you. Don't go alone.

These school hours are tremendously long for a boy of seven years. That question of attendance is a very serious one, and though I agree about the importance of attendance, I think I would rather keep children away from school until they are seven or eight years of age than send them for those long hours. I assure you you will find them far ahead of those who go at five.

A DELEGATE: Do you think it would be a good thing for the Women's Institutes to protest against the use of cigarettes by the teachers? While he may not smoke in the school grounds, yet on the street of the town in which he teaches, he does.

DR. BURGESS: There are many people who may think differently from what I do, but I do not think a teacher is justified in smoking, as his example is not good for the children.

REPORT OF WESTERN ONTARIO CONVENTION.

MRS. GEORGE EDWARDS, KOMOKA.

Regarding the subject under discussion, if anyone were passing through North Middlesex by train and saw our schools, I do not think they could say the schools were neglected. I know they are not just all they ought to be, but the school grounds in our section are beautified by flowers and trees. We have school fairs, which add very much to the interest of the school children in planting flowers in the school grounds, because they show these flowers in the fall at the fairs.

I won't enlarge on the reports, but pass along to the afternoon. We had an address of welcome by the President of the Canadian Club, and also one from the Local Council of Women, and they made the women from the rural districts feel perfectly at home, I can tell you. Another thing that the ladies of London have done is to start a Gardening Association, and that Gardening Association was reported at our meetings, and it was fine. Some lady said yesterday that the women of the cities did not like to soil their hands by doing dirty work, but the London ladies do not mind at all.

In summarizing the proceedings of the Western Ontario Convention, Mrs. Edwards referred to the large number of girls identified with the Institutes, and they are the leading spirits in very much of the work done, even the little girls of four or five will gather up the questions for the question drawer, and I can just tell you they feel quite "puffed" up to think they take part in the Institute work. The addresses of Mrs. Muldrew and Dr. Hill were particularly appreciated. I think we have hidden our faces too long on subjects of this kind (communicable diseases), and I think we should talk to our children about it. Our girls and boys are so dear to us, we want them to be the very best. They are the best asset Canada has to-day. In the to-morrows to come, our girls will stand in our places; they will be the standard-bearers of the different organizations and take up our work; they will be the mothers of the future generations, and why should not we talk to them that more of the Divine Spirit may be shown in the future and that our world may be a better place, and that peace and less fun-loving may be the attitude of the next generation to come!

At the close of the afternoon's session we had an afternoon tea given to us by the City of London. The Convener of our Committee interviewed the Mayor before the Convention was held, and asked him if something could be done to entertain

the women who were coming from the rural districts to the city, and he asked the Convener of the Committee to write out just what she wanted, the place of meeting, and what she would like as an entertainment for the ladies, and he would present it before the Council. She did that and it passed. The women of the Canadian Club acted as hostesses, and the menu of that supper was grand. One thing that was very nice: we use many oranges, and the skins of the oranges were preserved in such a way that they were what we had to go between the courses, and we could put our hand in the dish and eat this preserved orange peel.

Between this banquet and the evening session, the Red Cross Hall was open for all the ladies to go through if they wished, and inspect the work done there, and some of the ladies told of the greater needs at the present time for the soldiers' comforts and for Red Cross work in general.

At our evening meeting, Dr. Annie Backus spoke on Conservation of Food, and of course she clinched everything that Mrs. Muldrew had said in the afternoon. Their talks were not at all alike, but one harmonized with the other, and I know I won't have any more trouble with pledge cards when I go back.

Then the Red Cross thought because the Women's Institutes had done so much to help furnish and build the Byron Sanatorium, a hospital for returned soldiers, that it was only right these ladies should go to Byron and inspect the building, as far as it was completed. To give you an idea of what the Institutes are doing for that, one Institute alone has paid \$500 to furnish a ward, and \$500 towards an X-ray machine to be placed there. I am sure the ladies were all very pleased to have the opportunity of seeing where their money was going.

I have not reported very much about the work, but I am going to take the four corners of our district and fold them together in one huge bundle of work, and tell you the key-note of all the work of these women has been our motto, "For Home and Country." The watch-word is loyalty, loyalty to the dear ones overseas and loyalty to those at home, and the theme of our every song is "We'll Never Let the Old Flag Fall."

REPORT OF EASTERN ONTARIO CONVENTION.

MRS. R. V. FOWLER, PERTH.

At a convention like this it is pretty hard work to get up and give a report from another convention. We have only had four conventions in Ottawa, and I can safely say that the Fourth Annual Convention was a decided success. From the very beginning of the sessions to the end of the luncheon which terminated the convention there were very few, if any, dragging moments. There were many causes for this. In the first place we had ideal weather to help us, and I think the proceedings in the Convention Hall matched the weather outside, for it certainly was a very bright convention despite the sad times we are in. Our attendance was very good considering that we have the smallest number of Institutes in the Province in our district, and although in the last four years we have had very few new branches formed, still we can notice a great interest and zeal in our work, and perhaps that accounts for the increasing numbers. And then, of course, we are Scotch, and it takes a good while to get the Scotch people thoroughly warmed up, but they always keep it when they have it. (Applause.)

Another thing that can hardly be over-estimated in talking of the success of our meeting was the interest that the women of Ottawa and the different societies

there took in our work. At our first convention, four years ago, we all seemed to be a little bit afraid, I do not know of what, and it has taken these intervening years to work up a spirit of friendliness and get-togetherness that was so noticed in this convention. In fact our Superintendent congratulated us on the very friendly meeting we had.

We were very fortunate in our speakers. One of the great causes of success at this convention lies in the fact that these busy men and women make time to come and speak to us of the things that they are so well versed in, and to the average delegate from the small town or country district, that is the distinct gain of the convention each year, because we draw so much inspiration, and it is such an uplift to us to come in contact with these men and women who are at the head of things and know about current affairs. We cannot over-estimate that inspiration. Three of our speakers were old friends: Mrs. Shortt, President of the Ottawa Council of Women, and who is very active in the National Council, gave us an address of welcome. Mrs. Shortt has always been interested in our work, and her address of welcome touched the key-note for the whole Convention by showing us what co-operation among all the women of Canada can do in even one subject, the conservation of food.

Then Dr. Helen MacMurchy, an old favorite with all of our Institutes, very fortunately was in the city and consented to fill in space in the evening session unavoidably vacant by Dr. Robertson's delay in coming to the meeting. We are always pleased to hear Dr. MacMurchy talk of her own subject, the care of the feeble-minded, but this evening she gave us a decided change, because she recited to us five beautiful sonnets written on the war.

Then we had Dr. Robertson, and we are always ready and pleased to listen to him. In his capacity as chairman of the Advisory Committee to the Food Controller he made the delegates realize as never before the gravity and acuteness of the food situation. The next morning Mrs. Muldrew followed that, coming directly to us from the Food Controller's office, and, as one delegate expressed it, these two short addresses from Dr. Robertson and Mrs. Muldrew did more than a ton of newspaper reports could do to show us what had to be done and our responsibility in the matter. I do not think in Eastern Ontario we will have any more hardship about these pledge cards.

To many of us Dr. Margaret Patterson was a new personality, but we will all gladly welcome her again, and in her talk on Red Cross and other patriotic work she gave the necessary stimulus, if it had been needed, to any flagging or lagging in the work.

Our reports were very limited this year. Mr. Putnam chose only a few of the outstanding branches, those who had been doing any special work, and two or three were quite out of the ordinary.

The weakest part of our convention, I think, was the discussion. The time given for discussion is limited, and one waits for the other to begin, and in that way time was lost, and in some cases the discussion was dropped altogether. Next year we hope we will have that remedied.

The convention terminated with a luncheon tendered to us by the City Council, and the Local Council of Women acted as hostesses. The delegates appreciate very much the fact that Lady Borden proposed the toast to the Institutes and attended all one day's sessions, and they also appreciate the fact that the Hon. Mr. Rowell and Mr. Macpherson, the head organizer of the Victory Loan, came to speak to us about this important work.

That completed our very successful convention, and I would only like to express the wish that the delegates to this Central Convention may take home the same inspiration and uplift that we did in Ottawa, and that we will all co-operate together for the goal we are aiming at, to win the war and do all we possibly can to help in that desired end.

EVENING SESSION.—NOVEMBER 22nd.

DR. GEORGE C. CREELMAN, Commissioner of Agriculture, Toronto, in the Chair: It was my privilege last year to speak to the women of the Ontario Women's Institutes from all over the Province of Ontario. At the conclusion of the meetings I congratulated Mr. Putnam, as during the meetings I congratulated the ladies themselves, not only on the excellent attendance, but upon the subject matter of the papers that were read, and the most excellent practical suggestions that were brought out at each session. I don't know anything that I would rather do than attend these meetings that you hold, and see just what is being done in each municipality, but I am not able to do that. I am very glad indeed to be permitted, once again, to meet with you and to look into your faces and hear of the work you are doing. I want to congratulate you on the work you have been doing, and I want you to just go on as you have been in the years past, but with renewed vigor, if that is possible. I hope you will not let up with a single activity that you have begun. While we do not want to go into war topics to-night, yet I do want to say that you must not quit any of the things that you are doing for our soldiers, sick and well. This good work for our boys must go on. We are just getting to the crisis of things, and if everybody holds on and everybody keeps going and does just a little bit more, if everybody exercises just a little bit more thrift, just a little more saving, then we will come out all right. Perhaps you can stand another pound of pressure at the work: if we all do our best, we are bound to win, and win all the sooner because of that spirit.

In the Department of Agriculture, of which you are one of our strong branches, we have been trying to size up the situation this year as carefully as we can to see if we can do something for the farmer on the ordinary farm more than to give advice. How sick the farmer must be of our coming to him with advice, and seeing articles in the paper advising him to do so and so. I said to the Hon. Sir William Hearst, when he assumed the duties of Minister of Agriculture and I assumed the duties of Commissioner of Agriculture, that we must get around us all the successful men we can in all branches of the work and see if we cannot supply something else to the farmer than advice in the days that are to come. We undertook some things, and I am going to tell you about one or two of them.

We found that wool was a commodity that was very much wanted, and we decided to speed up the production of wool. The farmers said, "What is the use, we cannot get more than 40c. a pound for wool?" We said to the manufacturers, "What are you paying for wool?" and they said, "We are paying a good deal more than that for it." I said, "Why don't you pay our farmers a higher price for their wool?" They said, "Because we do not get your farmers' wool in anything like the quantity or in as good quality as we desire." I said, "How is that?" and they said, "One farmer will bring it in tied up with binder twine and another will bring it in tied up with wire, and the wire eats into the fleece and spoils the

fleece, and we have to sort and grade all that wool and a lot of it is wasted." I said to them, "What do you want us to do?" and they said, "Get the wool together somewhere and grade it and we will buy it from you." We wrote to the farmers telling them that if they would ship their wool to Guelph that we would grade it for them, and see if we could get more than 40c. per pound for it. To make a long story short, for the first time in June of this year the farmers sent in their wool to be graded and took a chance of getting back a cheque. They sent in nearly 300,000 lbs. Although the farmers were only getting 40c. per lb. before, the average price of the whole lot was 63c., and some of it sold for as high as 75c. That will give you some idea of the value of co-operation in wool. We were able to do that for the farmers this year instead of giving advice.

Then the creamery men came to us and said, "Can you do something for us in the matter of butter?" I said, "What do you want us to do?" and they said, "It is difficult to get a carload of butter of a uniform quality anywhere in the Province of Ontario, and the Western Provinces are sending butter to Ontario and selling it in all the large cities." I said, "Surely we can make as good butter in the Province of Ontario as they can in the West." It was decided to have them ship 14 pound samples of every churning and we would grade it for them. We bought these 14 lb. samples of every churning, and we graded it, and we are not going to lose any money on it, because these 14 lb. packages have increased in value from month to month, and we are holding them in cold storage and we will get our money back, and the result has been that we are able to compete with the other Provinces and we get an increased price for our butter. These are some of the things we are doing for the body politic, which the individual cannot do for himself or herself. It ought to be the function of the Government to do for the people as a whole what the individual cannot do for himself, and that is what we have been trying to do.

Then we began to look into the potato situation. They were a pretty high price last year for the people in the towns and cities. I was not worrying about that so much, but we had to go to the people on the farms, in the face of a rising market, when potatoes were \$4 and \$5 per bag, and say to them, "For the sake of the people of Canada don't sell these potatoes. Put them in the ground and give them attention, even though potatoes may be cheap next year. We must have a big crop." The farmers responded splendidly. You know that the farmers could have sold their potatoes for a very high price, yet they put them in the ground, and I am glad that they are getting a good price for potatoes this fall. Don't believe for a moment that the farmer is making a fortune out of his potatoes this fall. Remember that the farmer is only working a few acres after all, and that they have only half a crop and some less. Some have only 75 acres under crop, and supposing he makes \$25 per acre clear, then he has not got the salary of a good city man, to say nothing of the years when he does not get a crop at all.

We found when we came to discuss the potato question last year that we had 200 varieties raised in the Province of Ontario. With the exception of Caradoc, in Middlesex County, and in Wellington County, near Erin, and in a section in Carlton County where they stick to one variety, there are no sections where they grow one variety of potato so that a carload can be shipped to Toronto or Hamilton or London. I thought it was a shame that we should be paying high prices for potatoes in New Brunswick and Nova Scotia, simply because they can be bought in car lots. The commission men said, "We cannot send the grocer one kind of potatoes to-day and another kind to-morrow, and we have to pay more to people who will

give us the same thing all the time and just as we want it." They said they would prefer to buy Ontario potatoes, but they could not handle two hundred varieties in one car. We got the potato men of the Province of Ontario together and we talked the situation over, and we got down to 20 varieties. Professor Zavitz thought ten would be sufficient and others thought five would do, and they finally boiled it down to practically two, the Irish Cobbler, which includes the Eureka, for the early potato, and the Green Mountain type, which includes the Delaware and some others, for late potatoes. They said they could stick to these two, with the Carmen, which is established around Port Arthur. All it wanted was somebody to call them together and tell them what was wanted. We have bought this week a thousand bags of potatoes that are free from disease, and we have put them away for distribution next spring. We hope to encourage the farmers of Northern Ontario by buying their potatoes for seed, because it is best to get seed from the north and to have a change of seed, and if we can get our seed from the north we will not have to go to Nova Scotia for it.

That is part of the work we have been trying to do, and I have been delighted to see how reasonable the farmers are if they are given something definite to do and tell them to go to it. We have probably been preaching too much and not getting the real advice from the best farmers as to what is the proper thing to do.

Mr. Hanna, the Food Controller, told us that the Allies were thirty million of hogs short, and he said, "What will we do?" "Talk it over," I said. We called four men from each county in the Province to discuss the hog question. Men came there to say, "We are not going to do any more than we have been doing"; men came there to say, "We have done all that we can do," but they went away saying, "We have been told the situation and it is up to us to go home and put into practice the simple process of raising more hogs." Now we must all try and see if we cannot nurse along a few more pigs or a few more chickens, and we will in that way be doing our bit. In some of the places where these men went home they sat around the fire-place and talked the matter over, and some of the children said, "Well, I can take four pigs and raise them myself; I will do all the work in connection with them. My brother is overseas and I will do my bit in that way." We want to encourage all these things because we can only win out by every farmer doing his part.

The Department of Agriculture has come to the conclusion that by taking the Women's Institutes into their confidence, and the Fruit Growers into their confidence, and the Live Stock men into their confidence, we can get them all to work together and with the Government, in producing what is wanted for the benefit of the Province and for the benefit of the Empire.

I have just one hope out of all this work, and that is that in the days that are to come we may be able to work out of this speeding up an organization throughout the whole Province of Ontario among our farmers, non-political, non-religious, but with the one word common to all, "co-operation" in all things for the building up of a new rural community, that will be so splendid that the city and town people will all want to join.

It is not long since the first Women's Institute was organized and then another and another. and now Mr. Putnam tells me they have extended to all parts of the Province. and we have as the first paper to-night the report of the Women's Institutes of the Thunder Bay District.

REPORT OF THUNDER BAY DISTRICT.—1917.

MRS. GRATTAN: During the 26 years' constant residence in Thunder Bay District, in which I have travelled about the country a good deal, I may say without vanity that my knowledge of the district is pretty exhaustive and thorough. It is neither a Sahara nor a land flowing with milk and honey, but a country having its drawbacks—what county has not?—yet capable of supporting a large population of men and women of almost every calling in life. This district raises men and women of whom we are proud and gives them a measure of health, longevity, and comfort far in excess of that enjoyed by the average human being.

I have pleasure in presenting to you a short report of the Institutes in the district. We have eleven branches and they raised \$2,322 last year, \$1,286.69 for patriotic purposes; 278 pairs hand-knit socks were sent to the boys, and other articles were donated, which were valued at \$266. The Red Cross donations amounted to \$769.36.

The women are doing a noble work in a highly efficient manner. I cannot single out any particular branch as being the banner branch of the district. Every branch has been working, every woman did something in some way for Home and Country, and for the comfort of the men on the firing line. I am proud to belong to the Thunder Bay District, and it is with a thrill of pride that I learn of the splendid work our women are doing in the present crisis of our country. They have rendered a splendid service and no doubt will continue to do so as long as the necessity exists. There is no question but that we, as a body, live up to our beautiful motto. While some branches have undertaken local improvements and other special work, and while since the outbreak of the war all have responded with enthusiasm to the call of patriotism, the greatest work, I think, the Institute has accomplished has been in raising the level of self-confidence amongst our members. It has been the greatest factor I know of—far greater than Church work even—in developing in our country women more complete, nobler, more beneficent mental powers.

CARTERS.—Is our youngest branch, a few splendid women doing what they can for Home and Country.

DORION.—Is a wide-awake, willing Branch, yes, eager to live up to our motto. The Red Cross, Belgian Relief, and all good causes are not overlooked. Boxes are sent frequently to the local boys. They have a community medicine cabinet. The nearest doctor and drug store is fifty miles distant, so the committee keep the cabinet well supplied with remedies for man and beast. Dr. McKenzie Smith inspected three schools in Dorion, with the result that a number of children were operated upon.

O'CONNOR.—Is one of our very best. The women are in the work heart and hand. Besides doing handsomely for all patriotic causes, they had a fall fair of their own this year. The idea originated upon receiving the seeds from the Department. This fair was a great success, and they have already planned to have a better and larger one next year. Great credit is due to the young secretary, a girl of about 15.

FORT WILLIAM.—Aims to help the most worthy. The Y.M.C.A., British Red Cross, Relief Fund, Return Soldiers' Welcome League, Wesley Institute, Blue Cross, and St. Joseph Orphanage have all been helped. They take quite an interest in the country people. They served luncheon to the farmers and their wives opening day of the City Market. They also served lunch to the farmers who helped to make Red Cross Market Day a success, and entertained them to a box matinée. This Branch

has a soft spot in its heart for the farmers, all right. The President brought forward and the members launched two great schemes: "Shop at Home" and the "Hay Fever Patient Problem." To a great extent the "Shop at Home" proved a success, and they are living in hopes that the time is not far distant when they will have hay fever patients summering at the head of the Great Lakes.

PORT ARTHUR.—Is very active in all good works. The Red Cross, Belgian Relief, Children's Shelter, etc., have been given much help. Two showers of fruit and vegetables were given the Children's Shelter, and a Christmas Shower is planned for them. Helpful literature is sent members who live in isolated parts of the country where as yet they have no branch of the Women's Institute. Quilts are made and sold and the proceeds used for relief work. The Secretary gave \$7.50 (talent money) to help buy comforts for local boys at the front. Two canning demonstrations were well attended and many new members secured. Money was raised to help send a cripple to Toronto, and a soldier's sick wife was given money to buy comforts on her voyage across the ocean. The Dorion children were met at the station. The boys are not forgotten, and Christmas boxes are on the way to them from Port Arthur branch.

ADDRESS.

MRS. ST. CLAIR STOBART, OTTAWA.

I wonder if you realize that there are at this moment only two classes of people in the world—pro-Ally and pro-German. There cannot be a third class of people in the world because there is no such thing as neutral to-day, for this is a war of morality, and you cannot be neutral where morals are concerned. Therefore everybody in this room is either pro-Ally or pro-German. If you are pro-Ally you are doing your utmost, not merely your bit, as some people say, but your utmost to help your Government, physically, morally, and financially to destroy the autocracy and militarism of the Central Powers. If you are pro-German you are reluctant to let your boys go to the Front and you are priding yourself as being a superior sort of person. Before this war broke out I was one of those silly fools who believed that the Germans never had any intention of conquering England. I know now that they did intend to conquer not only England but all mankind. A leading German has stated: "Germany's seal is God's seal, it shall and will rule over all mankind." A German peace at this time means German domination over the whole world. It would mean perpetual warfare while the conquered nations struggled to regain their national rights. Do you realize what a number of Canada just as soon as she had finished with Europe? Do you realize that if that either directly or indirectly Germany has conquered in one way or another Russia, Poland, Serbia, Roumania, Greece, Belgium, part of France, and part of Italy? Do you realize that Germany's plans were to come over and take America and Canada just as soon as she had finished with Europe? Do you realize that if peace were declared at this moment it would be a peace on Germany's terms? There is no question about that, and a German peace would mean German world-domination, and that would mean universal militarism and perpetual warfare, and a warfare more terrible than we have yet experienced. In the future the inventions of man would be directed to the bringing into being of terrible machinery of warfare and for the destruction of human life. Anybody who still clamors for

peace, or who is not doing their utmost to help to continue the war, is—well, shall we put it plainly—a shallow-pated fool, who cannot see the length of his own nose, or else somebody who would derive an advantage from perpetual warfare, or else, and what is more likely, a pro-German.

I am going to give you a few of my own experiences during this war just to show you the actual result of German conquest.

First of all, I went to Belgium at the request of the Belgium Red Cross to establish a hospital in Brussels. I went in advance of my unit to make all necessary arrangements. My husband was with me; he was to act as treasurer of the unit, and the Vicar of the Church of England was to act as chaplain of the unit. I was given a building of the University in Brussels to convert into a hospital. I cabled the rest of the unit to come on and I set to work and began converting the lecture-rooms and class-rooms into wards. That very morning the Germans took possession of the capital of Belgium. From that moment there was no possibility of establishing a hospital, because the Belgium Red Cross had been taken over by the Germans. I knew that my duty was to stay, and try to stay in touch with the rest of my unit, whom I knew had probably arrived. I applied for a passport to get out of Brussels. It would astonish you if I told you the difficulties I had in getting hold of that passport. After we got the passport we had great difficulty in getting through the lines. We were arrested as spies and condemned to be shot within twenty-four hours. We were subjected to every indignity that human beings could devise. We were finally taken into the office of a German officer, and I showed him my papers and that I was an English Red Cross worker, and he said, "I am not going to look at these papers," and then he took down a big book and he said, "Read for yourself: Condemned as spies, to be shot within twenty-four hours." I knew it would give him a great deal of satisfaction to see an Englishwoman afraid, and I determined that I would not give him that satisfaction, and I just told him to look at my papers and he would see that I was engaged in hospital work and could not be condemned to be shot. I am telling you this because it shows better than anything else the spirit in which this war is being waged, and remember that until this war broke out I had been one of those silly fools who never believed that Germany would make war on England. This officer said to me, "You are English and this is a war of annihilation." I realized then for the first time what we were up against. My first feeling was one of relief, because now I knew the truth. There was my friend the chaplain, who represented the Church, and my husband, who had been a judge and represented justice, and I who represented the healing of the sick, and yet we were not respected by these inhuman monsters. That was my first eye-opener, but I had a great many more before I finished. I cannot tell you how we escaped, but we did escape after being confined in prison.

Then I was asked to take a hospital unit of women to Antwerp, and I went there, and then Antwerp was bombarded and for eighteen hours our hospital was under shell fire, and during that time I had a very good opportunity of seeing how women will act under an intense strain. There were great shells dropping all around us, making great holes in the road 18 and 20 feet deep. These women took no notice of the shells, but looked after the wounded men and got them into cellars and other places where they would be safe from the shell fire. We had just time to escape over a bridge of boats just before it was destroyed. Once more, after seeing the great misery that was caused, women and children driven from their homes, all on the road and trundelling their little things before them in

wheelbarrows and carts, these poor people had to make the best way they could to safety. Then I was asked to take my hospital to France, and I went to France and I found it was not so hard to work in France. I read about the great trouble they were having in Serbia, and how they could not get doctors or nurses and that an epidemic of typhoid fever had broken out. I had been to Serbia in the first Balkan war, and I took my woman unit and my hospital to Serbia to the headquarters of the Serbian army. I took out there six women doctors and eighteen qualified nurses and women cooks and chauffeurs. We were given large military tents and had at once 150 wounded put under our care, and, in addition to that, we put up tents for the civil population, who were suffering great hardships. One-third of all the Serbian doctors had died either of typhoid or of wounds. There were four thousand graves of typhoid victims in one town. At the end of September the Bulgarians threatened invasion and also the Austrians, and I was invested by the Army Medical Service as a Flying Field Hospital, with the rank of major, in the Serbian Army. This was a rather remarkable appointment, and it was a great compliment to British women that for the first time in history a woman had been appointed a major in the Serbian Army. We were sent first to the Bulgarian front, and then we were sent to the Danube front, where the Serbians were opposed to the stronger enemy. Our column comprised two of our women surgeons and four trained nurses, two cooks, two orderlies, and six ambulance drivers, ox waggons and horse waggons, also sixty Serbian soldiers who were to go as orderlies and stretcher-bearers. From the moment we left our train we never boarded another until we arrived home three months later. We were not long at the front before we realized that hostilities had commenced in earnest. Our division of 25,000 men were up against 100,000 of the best German and Austrian troops, with all their heavy artillery and Von Mackensen in charge. Then every day an orderly would ride up to our camp, and he would have a little square envelope which he would hand to me, and I would get directions as to the next village I was to move to, and a map was provided giving the directions in which the column was to move. At first the direction was nearer and nearer to the enemies' country, but I soon found out that we were ordered to move in the other direction, and of course I knew that meant retire, and from that moment we never advanced again. We were with the rear-guard, and we received the wounded direct from the battlefield, which was always very close, and the wounded nearly always came in at night; the reason for that was that the Germans fired on the ambulances and the stretcher-bearers, and made it almost impossible to collect the wounded by day. During the three months we retired night and day. I rode at the head of my column, and sometimes for three days and three nights I rode continuously. I would be told that we must reach a certain place and not halt till we got there. The enemy were close behind, and owing to the extra congestion on the roads it would take us three days to reach that village. It was estimated that in a single field there were no less than 5,000 ox waggons struggling for a place in the line. It was a retreat not only of the Serbian army but of the Serbian nation, and that meant that there were thousands of women and children and old men driven from their homes. There would be on the road waggons filled with hungry children, others with household goods; everything was passing along in that non-ending stream of humanity fleeing from a relentless foe. One woman was carrying an infant on her back and four others clutching at her shirts, when suddenly one of the little ones fell in the road and before the mother could pick it up a flock of sheep rushed by and the child was trampled to death. In that way hundreds of little Serbian children perished. Later, when we had to retire over the mountains,

it was thought that it would be possible for 30,000 little Serbian boys to get across the mountains so that when the Germans came on they could not make soldiers of them. They were asked to escape over the mountains as best they could, and the soldiers were asked to help them, but of those 30,000 boys of 14 and 16 years of age only 6,000 reached the coast. Finally, I was told that I must destroy my equipment and henceforth we must walk on foot to the coast. We could only take with us very little food. Others less fortunate than I were only able to take but very little, and some indeed had nothing at all. We had to travel over mountains 8,000 feet high, between passes 5,000 feet high. Men laid by the roadside in thousands and nobody to attend them, men dying by the roadside in thousands and nobody might stop to bury them. It was a combination of mental and physical misery and difficult to describe in words. No one will ever know how many left their bones in those mountain passes. It is estimated that no less than 20,000 are lying in those mountain sepulchres to-day. They died of hunger and fatigue. They either had to go back and be taken by the Germans or press on: they were between the devil and the deep sea and they chose the deep sea. The position in Serbia to-day is that the enemy wish to destroy the whole nation, it is a war of extermination. Let me tell you of these people that the enemy wish to denationalize. I have never seen a people that appealed to me more from their ideas of civilization, or art and culture, and their love of liberty and freedom. The ideal of these peasant soldiers was their home and family and their country. I was with all these soldiers, and I never once heard a soldier say or saw him do anything that would give offence to the most fastidious girl. I heard of a case where hundreds of these poor people were buried alive by being placed in a pit and the earth blown in upon them, most of them women and children. Out of a population of 4,000,000 there are not 2,000,000 left. They have very little to live on; the cattle have all been deported. If something is not done for these people there will be no more Serbians, and yet this is a nation which of all other nations of Europe should be saved. They have always been the buffer between Christianity and Mohammedanism in the old days. There were the first to make a stand against Germany. They sacrificed not only life but their country in freedom's cause. God help Serbia. It seems to me wonderful that we women should be just entering on the fringe of a new era, that just at this particular moment should be given the vote, because it is a very great crisis in the history of mankind. Everything depends now on whether we win this war or lose it. If we lose it, the whole of mankind will be practically disenfranchised. If you now vote for peace, a German peace, you will be using your own enfranchisement for the disenfranchisement of the whole of mankind.

Following this address a collection for Serbian Relief was taken up which amounted to \$84.39.

REPORT FROM WEST NORTHUMBERLAND.

MRS. ALLEN: I think reports are rather dry things, especially after the splendid address we have just listened to. I am thankful that the women of Ontario are organized so that we can minister in a feeble way towards the relief of such suffering.

The District of West Northumberland appreciates the honor and privilege of submitting a report of the work done during the year by our branches. That it has been confined almost entirely to patriotic work and raising funds for the Red

Cross, needs, I am sure, no apology, though we have tried not to lose sight of home in the needs of our country. It is gratifying to read the assurance that accompanies almost every report.

We have nine branches with a membership of about 325. Reports from the two smallest branches, Centreton and Elmview, are incomplete.

CENTRETON.—Reports for six months as follows: 44 pairs socks, 89 pyjamas and shirts, and a donation of \$10.70 to Red Cross.

ELMVIEW.—Sent 97 pairs of socks, 11 pairs mitts, 24 shirts, 1 box worth \$15.00, and donated \$42.00 to Red Cross. Value \$137.00.

FENELLA.—Which is also a small branch, raised \$258.25, which was expended in the purchase of Red Cross materials and yarn. I have not the full value of their work. Some special features of work come in the Baltimore report.

BALTIMORE.—Report that it was thought well to publish a magazine every three months, and in doing so some money was realized. Booths were held at the school fair and picnics, and in response to the appeal for greater production some members planted pieces of ground, giving the proceeds to Red Cross work. The total value of their work for the year is \$694.14.

COBOURG.—This branch, of which I am secretary, sent 221 pairs of socks, 128 shirts, 25 quilts, and 10 sheets. We gave the local hospital, where many soldiers have been nursed, a towel shower, and spent \$26.00 on miscellaneous articles and charity. Our members nearly all belong also to various other organizations, such as I.O.D.E., patriotic society, and Church societies; notwithstanding, our war work amounts to \$500. We have decided for the remainder of this year to raise all our money by envelope system.

ROSENEATH.—This branch served dinner at the Agricultural Fair, clearing \$80.00. Various articles donated for Red Cross work have been sold. The remaining expenses are paid from collections. The value of their work, exclusive of boxes sent every week, amounted to \$324.00.

GRAFTON.—This branch has an excellent report. From various sources \$396.85 were raised. Of this \$217.00 was spent on the purchase of goods for Red Cross work. Cash donations amounting to \$181.50 were made to British and Canadian Red Cross funds, Belgian Relief and Prisoners of War funds, and Toronto Institute for the Blind. Two barrels of canned fruit, valued at \$56.00, were sent overseas, and two bales of clothing and four quilts valued at a like sum were sent to Northern Ontario. Total value of patriotic work \$587.50. They sent 30 boxes to boys at the front.

WICKLOW.—This branch has sent a most encouraging report. They are particularly fortunate in their choice of secretary, and also that they receive regular grants from the Wicklow Cheese Board each month, and are not obliged to resort to ordinary methods of raising funds. The School Progress Committee has interested the children in the making of news budgets, and the members, in alphabetical order, send papers and magazines to the hospitals and firing line. The secretary states that 25 dressing-gowns of heavy union flannel were greatly appreciated and admired by the Red Cross branch that packed them for shipment. This branch sends to each man in France who enlisted from that vicinity a monthly box valued at \$5 to \$6. Number of boxes now being sent is 22.

COLD SPRINGS.—Is our banner branch. They have sent 487 pairs of socks. They raised \$154 by general canvas. Red Cross boxes in the various churches net about \$12 per month. Thirty-seven men have gone from that vicinity, each of whom received a Christmas box valued at \$2, but not included in estimate of war work, which amounted to \$805.50.

The total value of work reported amounts to \$3,606.34, exclusive of the boxes. As nearly as can be estimated, the value of the boxes sent by our district and not included in war work, is over \$2,000. With all this patriotic work, the monthly reports show that interest in local work is not altogether dropped and regular programmes are carried out at our meetings.

MORNING SESSION.—NOVEMBER 23rd.

MRS. GOULD, Fenelon Falls, in the Chair.

ADDRESS.

MISS M. V. ADAMS, NURSING SISTER, GEORGETOWN.

In the spring of 1915 the Canadian Red Cross decided that they would like to have two nurses represent them at the Front. Up to this time the Canadian Red Cross had never sent out any nurses. They asked for volunteers and twenty-one responded to the call. It was decided that we should be paid at the rate of \$5 per week. We set sail in April for England. On our arrival at London we were met by representatives of the Red Cross, and they seemed to think that they could not do too much for us. I felt that we were over there to help England in this war, and that we Canadians were as much a part of the British Empire as the people in England, Ireland, or Scotland. In about two weeks our uniforms were completed and then we were ready for work. At this time the Dardanelles campaign had opened and nurses were very much in need. Lady Hamilton decided that she would like to send out equipment for a hospital, and six of us Canadian Red Cross nurses were asked if we would like to join this unit. After a very pleasant sail we arrived at Malta. Here we found that the demand for nurses was very great. So great was the demand that the Governor of the island had commandeered some of the nurses on their way to Serbia. It was decided that we should disembark and start our hospital at Malta. It is quite an interesting place, an island about 9 by 70 miles. It is mostly lime stone, the soil is very shallow, and it is supposed to have been brought there from Sicily by boat. It is very fertile. There is very little grass—practically none—and very few trees. There are no cows on the island; the only milk they have is got from goats. These are continually seen wandering about the streets, and if you want milk the man sits down at your door and milks the goat. The goats were a great discomfort to me, as I never once saw them properly fed. The only thing I saw them eating was brown paper and tin cans. There is a very large military hospital on the island. It is an old building originally established by the Knights of St. John of Jerusalem. In the hospital is a small chapel. The building which we took over for our hospital was comparatively new, and that made our work much easier. By making use of our Red Cross supplies we soon had our hospital in working order, and we were able to take in patients. We were up at six o'clock and completed arrangements, and at ten o'clock the patients began to arrive and in one day we completely filled our hospital. There was the usual washing, and we had to see that the patients were fed and made comfortable, and the wounds had to be dressed. About six o'clock I and two or three other nurses went off duty for a couple of hours' rest, returning at 9 o'clock to carry on the work for the night. We left the ward the next morning about 8 o'clock,

and at that time we were ready to drop with fatigue. The floors were tiled and we had not been accustomed to standing so long, and our feet were sore. Owing to the want of hospital ships a good many of the wounds of the boys were in bad condition. Some of them had been laying out for two or three days, and the nurses on the hospital ships were so busy that they could only attend to the dangerous cases. Those who were able to go back to the firing line were sent to the Convalescent Home on the island. Hospital ships and more nurses were provided, and conditions were not then so bad as they were at first. Only those who have been over there have any idea of the wonderful spirit that encourages the boys. A great many of my patients were Australians and New Zealanders. One of my boys had been very badly wounded, his whole body was covered with wounds. One of his arms had been blown off. He had grey eyes and light eyebrows and lashes, and one day when I was dressing his wounds he said to me, "Sister, the next time I get an eye, don't you think I could make some improvement? How about autumn tints?" We were not quite so busy in July, and we could enjoy a sea bath. We had the first cold snap in November, and then we had several cases of frost-bite among the patients. Although it was said that there were no casualties during the evacuation, still there were some, but after that the only cases we got were sick patients and accidents. After a while the work was so light that the Governor decided that those who were there from the beginning should be given a month's leave of absence. Upon our arrival in England we had a pleasant time; many homes were thrown open to us and we had an enjoyable time at many of them. Our month's holiday was drawing to a close and so also was our work for the Canadian Red Cross, and we were asked if we would give our services for another year. Some of the nurses felt that their health would not allow them to continue, and others thought they could not continue at \$5 per week. Some of us decided that we could carry on for another year and we were sent to France. When I arrived the weather was cold and damp and it was cold working in a tent. However, I soon got used to that. Our hospital tent held comfortably about 11 beds and a table and a stove. When we were very busy the tents were made to hold 14 beds. In addition to the tents we had three huts, one holding about 30 beds.

Then came the July push, at the first of the push the boys arrived in a steady stream, so that by evening the hospital was full. About half-past six in the evening the matron came into my tent and asked me to open up another line of tents. I found patients lying about everywhere and orderlies putting up tents and beds. I at once set about seeing that the boys were properly attended to, washed, and their wounds dressed and that they had something to eat. I tried to get the necessary medical equipment, but could not until I went to the Red Cross store-room. As I came out from there with supplies I felt encouraged. Inside of a few hours we jumped from 500 patients to 1,500, and the same staff had to do the work for the 1,500 that we had for the 500.

In November we had a number of men come in with trench feet. It is rather painful, the feet become swollen and inflamed. We did the best we could for the boys and fixed them up with everything that they required.

We had a fairly pleasant Christmas, and after that came a very severe cold snap and with it came a scarcity of coal and the water-pipes burst and made things very uncomfortable.

ADDRESS.

SERGEANT W. TURLEY, SECRETARY GREAT WAR VETERANS' ASSOCIATION.

The Great War Veterans' Association was conceived in France, born in Toronto, and christened in Winnipeg last April. Since its formation it has been responsible for the obtaining of two million dollars of back pay, increased allowance, and increased pensions, and many other things have been done of which we are proud. The City of Toronto has shown a keen interest in the returned soldier. Last year at one meeting held in Massey Hall \$5,000 was contributed by the ladies of Toronto at what was known as the "Ladies Tribute Night." Since that night \$22,000 has been added to the fund. It was intended, and I believe is still intended, that the Women's Memorial shall take the form of a club house, to be the headquarters for the Great War Veterans of the City of Toronto. But there is a war on and there are more important things to be done than building club houses, and so in the meantime that \$27,000 will be put into War Bonds. Our first duty lies to the boys we left in France and we are going to do everything in our power to back them up. (Applause.)

The Great War Veterans' Association is a non-political organization. We would be the most selfish people in the world if we refused to back up the boys who are risking their lives that we may be free.

It is impossible to put in words the hardships an infantry man endures in 24 hours up the line. Very often in the mud knee-deep, feet and legs never dry. Walk in the mud all day, and take off your boots at every halting place to scrape out the mud that has oozed through, because if that mud gets dry it cakes there and you cannot march. It is all in the game and the boys do it nobly and well. I do not know that there are any better soldiers than those sent from Canada, but I do know that there are some as good, and they are the soldiers of the Old British Army. Tommy Atkins is still a cracker-jack. Old England goes out of her way sometimes to tap the Canadians on the back, and in turn we ought to scratch her back just a little. At the second battle of Ypres—May 1915—there was a Northumberland Division, just over from England, green troops, who had never heard a shot fired in anger. Yet these men went into action like veterans and never faltered, and they helped to push Fritz back from the positions he had taken from the French colonial troops. The Canadians did not know enough to get out when they should have; they held their ground, and it is well that they did, or we might not be here to-day.

When you feel that you cannot give anything to any other cause give something to the Great War Veterans' Association. I would like to see this Women's Memorial take the form of a club house in every city and town. I do not think there is any ground for fear that club houses for veterans of the great war will produce loafers or do any harm. I believe they will do a great deal of good, and I hope the women will continue in their good work.

MR. GEO. A. PUTNAM: Just a word of explanation with regard to medical inspection of schools. Some have said, "What business have we to interfere with the Department of Education?" We hear that it is possible for the local school board to introduce medical inspection. They have done this in the large centres. Can you point me to any section in rural Ontario where medical inspection was undertaken before the Women's Institute took hold of it? Our object in this work is to render a real service in the communities where we undertake the work. I want Dr. Mary McKenzie-Smith to make the appeal so strong that those in authority will not hesitate to give us the necessary amount of money to extend this work.

REPORT ON CLINIC HELD AT LITTLE CURRENT.

MRS. E. W. MACKIE, LITTLE CURRENT, ONT.

Last year, when Dr. McKenzie-Smith spoke from the platform on Medical Inspection of Schools, and the School Clinic conducted by the Gravenhurst branch, I thought, as perhaps many more of you did, that it was a splendid idea, but not feasible; all right, perhaps, for a branch fortunate enough to have as a member one of the medical fraternity, or a nurse, but not for us. However, when we found that Dr. Smith was to be our speaker at the summer series of meetings I asked that she take as her subject Medical Inspection of Schools, embracing the subject of School Clinics. As we were having only an evening meeting at Little Current, we asked Dr. Smith to go with us to the school, and examine a few pupils in each room, so as to be able to tell the parents at the night meeting, what percentage of those examined were diseased. As a rule it is much more interesting when it is our own children who are spoken of than some one miles away.

Our regular meeting was held a few days after Dr. Smith had spoken, and we elected a committee to interview the different doctors and nurses who it was thought we might secure to operate, administer the anæsthetic, nurse patients, etc., also visit the homes of children on the list and see how many parents were willing to have the operation performed, and to secure a building, as hospital, etc. This committee was to be allowed to use any Institute funds required without reporting to the branch, and in fact, were given the special honor of doing all the work, and perhaps as well, as we usually find that what is everybody's work is nobody's work. The parents of children on the list having heard the bad results of tonsils and adenoids and the good results following the operation in the majority of cases, were glad of the chance of having it done without any trouble and at a reduced rate. The committee went around the day before and told the mothers how to prepare the children, and those who were to be done in the morning were to have no breakfast, and those in the afternoon, no dinner. The house we secured as a hospital was fitted up with five cots in one room, four in another, and three in another; and the front room with a large window was the operating room. The children we had stay at the house of one of our members, who lived only a short distance away, until we wanted them. Two ladies, one of them myself, volunteered to go as nurses in the morning, and two in the afternoon, as well as Mrs. Davis, her sister and the practical nurse. We had all of our 18 patients sent home with the exception of two who lived in the house, where the operations were performed, and we found that we had an overflow, which we thought would keep us occupied for the next forenoon. These children, you will understand, were not prepared as we knew nothing about them before. However, everything went very well, and we found that we had, when we finished the day, operated on and cared for and sent home 32 cases. This, we consider, a record as there were no examinations of pupils in the school, excepting that made by Dr. Smith, and that was a very small percentage of the children. The parents who were able to pay anything only had to pay the small sum of \$5 for the operation, and this was all the doctor charged us for the same. Any child who was not able to pay, was not paid for by our Institute, but was operated on by Dr. Davis, free of charge. We had to pay for the gauze, 125 yards, which was sterilized by Dr. Davis free of charge. Each child brought with him his

own "nightie," sheet, pillow and blankets. These were sent home with them, clearing as we went. We also had to pay for the anaesthetic, the house, the services of Mrs. Davis and her sister, and the practical nurse, ice, etc. The expenses amounted in all to nearly \$50. We received from the Government a small grant for doctor's and nurses' services, amounting to \$28. We consider the balance well spent, and I trust that we may soon be entitled to yearly inspection of our school, which will allow of the children being kept in a much more healthy state than before. For some years, we were almost ashamed to have any one inspect or even visit our school, but not so now, as everything is in a sanitary condition, and the children who were operated on, everyone, in better health, and the teachers tell us doing better work than they were able to do formerly.

MEDICAL DENTAL INSPECTION.

DR. L. K. SIRRS.

The result of medical dental inspection is the best evidence of the necessity for such inspection. I will give you the result throughout the Province. We have had it as far east as Glengarry, and west as far as Fort William. You have heard from Manitoulin Island. We have it in Central Ontario now. The County of Lincoln is at present being inspected. It is the first county that has endeavored to have the whole county inspected; 102 schools have been inspected. The percentage for defective teeth is 71 per cent.; tonsils and adenoids, 30 per cent.; defective hearing, 5 per cent.; vision, 29 per cent.; malnutrition, 15 per cent.; goitre, 2 per cent.; vaccination, about nil. The few children that have been vaccinated were not born in Canada. I hope the day will come when we will have more of it. The buildings put up within the last five or six years are all that we could wish. There is no provision made for ventilation in the old buildings except by windows and doors. That is all right if it is made use of, but the trouble is that the teachers will not go to the trouble of ventilating the school rooms. In the new schools they have furnaces that are quite satisfactory. But in the majority of the schools they have a stove set in one corner and the children sit around it. I do not think a furnace set in one corner of the main floor is proper heating. The paint that is used in most of the schools is too sombre, it should be bright and cheerful. Some of the floors are seldom swept and the windows were dirty. I do wish you would go to the outbuildings in your school and see what they are like, then you will see some of the conditions that your children have to put up with. The dental inspection is the work of the men and if they do not do it it will not be done at all.

MEDICAL INSPECTION OF SCHOOLS.

DR. MARY MCKENZIE-SMITH, GRAVENHURST.

I am glad to come before you this year. Last year we only had six schools to report on, and only one clinic had been carried out. This year we inspected 102 schools. I inspected 72 of these myself. We have carried out clinics in

six different centres. We had no trained women to carry on the work, and it was done by the women of the Institute. I shall never forget the assistance I have received from the women of the Institute in this work. They have only 13 branches in the Rainy River district, and they decided to hold a clinic and medical inspection of schools on the 17th day of September. On that day they had 21 schools ready for inspection. In two instances only did the trustees refuse the inspection. In one instance they had an indignation meeting of the rate-payers, and they forced the trustees to allow medical inspection. In the other a lady living near the school gave up her home for the medical inspection. Between two and three o'clock the children came in with permits from their parents for the inspection, and every child in the school came with the exception of two who were the children of the trustee. Out of the 25 children that were inspected six were recommended for operations, and they have been operated on since. I only had seven days, and the work of the 21 schools had to be done in that time. I could not get around to all the schools and the children were brought in 12 miles in some cases although the people were busy getting in their potatoes. Notwithstanding all these difficulties I examined over 85 per cent. of all the school children in the district. One lady drove me from ten at night until two the next morning over rough roads, she was willing to do it that the children might be inspected. Another woman brought her children in at 7 in the morning. I never shall forget that morning when the ox cart rumbled in, and I went down to see the children. The lady of the house said, "I want you to have a cup of coffee before you go out to see the children." The most pitiful sight I have ever seen waited me in that kitchen. There were six children of one family and five of them were absolute idiots, and that poor mother who had not been out of her home for three years—her husband did not help her—had brought them in to see if anything could be done for them. All except one bright little fellow had to be lifted out of the ox cart and lifted in again. Their case was absolutely hopeless; there was not one child that you could teach as much as you could teach an ordinary chicken. They said I could not possibly get to one point. And one woman got up and said they had lost 75 per cent. of the children out there through an epidemic of diphtheria, and that it was so bad that the minister would not come to read the burial service. We travelled that night again, and got there the next morning. I found that their tonsils were very bad, but I only ordered operations in the extreme cases. We could not get a doctor from Winnipeg or Port Arthur for less than \$150 a day. The women got together and said they would help and we secured a local doctor. They secured the use of the Presbyterian Church and cleared it out and made it clean, and over 80 per cent. of all the children in that locality that I recommended to have their tonsils out came to that clinic and had their tonsils removed. The women gave four whole days of their time, because this doctor could not handle more than 10 cases per day. Some of the women had to bring their children in for 15 and 25 miles.

In the Fort William and Thunder Bay district we only had six schools to inspect and we had 35 children to operate upon. I haven't gone to one doctor who was not willing to co-operate with us in our work. At Fort William we got the children put through for \$12 each, hospital, and all. These people cannot afford to pay large sums of money. They are all on new farms and some of them have only a few acres cleared, and they have these children to feed

and clothe. Dr. Hunt put through 13 children one afternoon for us, and he did it for \$25 less than he would have got for one case. Then I was out to a place 40 miles from any doctor. I wonder if any of us know what it means to live 40 miles from a doctor and not to have a telephone? Many of these people live 14 miles from a railway centre, and they have to drive to the station and telephone to Fort William and wait there till the doctor comes on the next train. I told Dr. Hunt that I wanted some of the children done for the smallest possible fee, and he said he would do them for \$5 each. It was not charity. I cannot go over all the cases, but I do want to say that I could not give my time to medical inspection unless it was followed by clinics, as it is too hard on me. I find children, and I know their health is injured for life and they need an operation. I am only a medical doctor, and I feel that if I was going to have my tonsils operated on I would want a specialist to do the work, and I feel that we should give that same privilege to our children. I have never had but two children cry because they were to be inspected, and that was because we didn't have time to talk to the children before the inspection. At one school out in the West a little chap came up to me and he said, "Doctor, I don't want my conscience taken out." There was one place where some of the men did try to frighten the children, and one mother said to her little boy, "How did you get on?" and he said, "Why it was only a woman there mother."

In Peel County the ladies of the Institute helped me to the very best of their ability. One lady gave me three whole days of her time to drive me around to the different schools. At one school we found one little fellow who was not keeping up with his studies although he appeared to be bright, and we found that he could not see five feet away. Another little fellow who was supplied with glasses said to his father, "Daddy, I never knew that anybody could see like this before." At one school the teacher said to me "I don't know what to do with this child; she only comes twice or three times a week and she is sick in her stomach all the time." We found that that child was almost blind in one eye. She was a little French girl, and in one year she had learned to speak English, and she had to struggle on with that handicap. Parents who came to the school to see their children examined were simply astounded when they were shown the condition of their children's teeth and their throats. One trustee refused to give his consent, and I said get him there. I never let on that I knew he refused his consent, and I said, "I feel that a trustee must have a great interest when he leaves his work to attend an inspection." I had him measuring the children and helping me in many ways, and when he found that his own boy could only read at four feet what he should have been able to read ten feet away he was astounded. And when he looked down his boy's throat and found that his tonsils needed removing, that man said to me, "I am now an advocate of medical inspection of schools, and I will try to have the Government bring it into operation."

One word about teeth and then I am through. In one school at Little Current we found that there was a small percentage of bad teeth, and we found that there was one teacher in that school who had made the children take a great interest in brushing their teeth. At St. George I found 89 per cent. of bad teeth, and at Little Current only 39 per cent. They were schools of about the same size, but at Little Current I found a very high per cent. of bad eyesight and only 5 per cent. at St. George. At St. George we had perfect lighting, and there was imperfect lighting at Little Current. At Little Current there was not a candy store near the school but at St. George it was right near the school.

Q.—Children's teeth are not given the care they should have by way of brushing them.

A.—I asked one little fellow what his father would do if he had a horse with bad teeth, and he said "He would sell it." I want to tell you that through Mr. Putnam and only through Mr. Putnam have we been able to do this work. We have no regular appropriation for this work. It is only because Mr. Putnam has been able to send us out as regular Institute workers that we have been able to carry on this work. We owe Mr. Putnam a vote of thanks for his kindness in helping us to carry on this very important work.

Q.—How are you employed?

A.—Just as a regular Institute worker by the Department. Some of this work is done when I am out on my regular lecture course. I do this work in the morning and lecture in the afternoon and evening.

Q.—As a county how will we start the inspection of schools?

A.—As a county, I do not know. In Peel County one township was taken as a sample, and I was asked to go in and inspect the schools. We examined 18 schools. The Institute paid for the transportation in getting me from place to place. It cost very little because there was always somebody ready to take me from one place to another.

Q.—I am told that at one school the teacher asks to see the fingers and nails of the children and marks are given for the care that is taken of their nails and teeth?

A.—I saw one school where that was done, and there I saw the finest mouths I looked into in the whole of my inspection. I wish the women would look into the ventilation of the schools. At one school I visited they had storm windows half way up and that allowed the air to come in and pass over the heads of the children.

Q.—For the benefit of mothers who are raising children, what kind of food should they give them so as to preserve their teeth?

A.—A doctor who is at the head of this work in Toronto, said the reason there were so many decayed teeth was because there was so much sugar eaten. Crusts of bread or anything like that will help to clean the teeth. Eating too much sugar and meat is bad. I find in the rural districts that children do not drink much milk. Oatmeal is good for the teeth. For proof of that all you have to do is to go back to the Highland Scotch.

Q.—My father was raised on oatmeal, and he died at the age of 84 and had only one tooth missing.

Q.—Have you ever noticed children with one shoulder higher than another?

A.—Yes, instead of the seat fitting the child, the child has to fit the seat. Dr. McEwen says that in one room they found every child with that defect.

Q.—Would that be the teacher's fault?

A.—No, I could hardly blame the teacher. The day has gone by when the mother has no interest in the school.

Q.—Mr. Hanna said we should raise more hogs to feed the boys overseas. Don't you think children are more important than hogs, and that the Government should help us to raise the children?

A.—I think every mother should go to the school once or twice a year and see how things are run there. Many of our teachers are only 18 or 19 and they are responsible for 25 or 30 pupils.

Q.—When she is being trained for a teacher should she not be taught these things that are essential?

A.—The instruction she receives is pretty full.

Q.—Is it only through the Institute that we apply to have our schools examined?

A.—If you write to Mr. Putnam he will give you all necessary information.

Q.—If the trustees object to the mothers going to the school what are you going to do?

A.—I don't think the trustees can object.

Q.—Why can't we get a cheap tooth brush now?

A.—In Toronto they are getting them for ten cents, and I think our rural children are getting them for the same price. I think if you apply to the Play Grounds Association you will be able to get tooth brushes for ten cents.

COUNTY OF MIDDLESEX WOMEN'S INSTITUTE AND RED CROSS CANNING CENTRE.

MRS. (DR.) WILSON, Parkhill, gave a very interesting report upon the organization and operations of this centre. The following report was prepared by MRS. MINNIE C. DAWSON, Parkhill:—

Nothing could be more natural than that a campaign for greater food conservation should follow closely on the heels of the campaign for greater food production. People everywhere had taken up backyard gardening, and thousands, not content with this, had rented larger plots of land. The acreage devoted to raising perishable vegetables has been doubled and trebled. During the summer months tables would groan beneath an abundance almost wasteful, but, when the harvest was past, there would begin the old-time procession to the grocery store for canned goods, for the canned goods which were needed so badly overseas.

Always on the alert, the Women's Institutes Branch of the Department of Agriculture of Ontario, stepped into the breach and led the way. Plans whereby all the extra foodstuff raised could be conserved were carefully thought out. Then, through a circular sent to all Women's Institute branches, the Department offered the services of experts who would demonstrate how to can vegetables and fruit, and, besides this, offered such centres as wished to undertake the work help with a canning plant.

Many places availed themselves of the demonstration lectures on canning, and with the information thus obtained, supplemented by Miss Ethel Chapman's pamphlet on "How to Can," they did excellent work. After having a demonstration lecture, Parkhill took a step further and accepted the Canning Centre proposition.

A large committee of citizens, both men and women, interested in gardening was formed. The chief usefulness of this committee was in the publicity it gave to the undertaking. After plans had been made the different members of this committee made a house to house canvass of the town, talking canning centre, production and conservation, and afterwards this part of the work bore abundant fruit in the interest shown by the town and in the donations of fruit and vegetables received for Red Cross work.

Mr. P. E. Culverhouse, of the Vineland Experimental Station, was sent to Parkhill by Mr. G. A. Putnam, Superintendent of Institutes, and rendered invaluable service in planning and installing the equipment. This consisted of a boiler with a capacity of 100 pounds, steam pressure, a large zinc-lined vat in which 54

sealers could be placed at one time, one smaller vat for sterilizing, one copper kettle for jam, etc., wire baskets for handling sealers, pans, spoons, weigh scales and many smaller necessities. The vats and copper kettle are heated by coils of pipe carrying steam, and any of them can be brought to a boil in three minutes. The town of Parkhill installed water, and one of the most expert engineers in town, Mr. J. Fountain, gave his services free and looked after the boiler. The Militia Department gave the Armory for the work, and in it all the equipment was installed.

It was intended at first to do a great deal of work for the women in the town, each woman who took advantage of having her work done in the centre to give 10 per cent. to Red Cross, and it was also the intention to buy vegetables such as peas, can them, and sell them to the women at small profit. This was done with corn. But the work fell too heavily on the voluntary workers, and those who paid the nominal price for the canned corn escaped too easily. But we had community days, when women worked to can their own material or purchased material for themselves. We bought peaches and blueberries in quantities and sold them to our women at cost price. But soon material for Red Cross work was donated in such quantities that the Centre was forced to abandon community work and all energies were bent to keep pace with these supplies. All work was voluntary. Some worked in the morning, some in the afternoon, some at night and some all the time. In addition a corps of emergency workers held themselves in readiness and responded at once when called because an extra rush of work had to be done.

The Institutes of Middlesex County were circularized and through them the Red Cross circles and asked for chickens to can and financial aid. These both were forthcoming. The chickens arrived in piled-up crates with fifty, sixty, or even eighty in a crate. Through the columns of the local paper, "Calls from Macedonia" were sent out. At one time it would be, "We need butter for our tomato soup." At another time it would be, "Cucumbers" or "Beets" or "Tomatoes," but, whatever it might be, the call was never made in vain.

Money was voluntarily handed in for the work by private individuals, by the Boys' Club, by the Girls' Junior Red Cross Circle, by Women's Institutes, by school children and by mothers of lads across the sea who had no chicken to give, but gave money instead.

To meet part of the expense a two nights' concert was put on under the auspices of the Canning Committee, and sixty of our young people and older people took part in this and by hard training made it a success, which netted \$120 clear of all expenses. A soup day was held at the Armoury, and a dish of tomato soup was sold to all comers for ten cents. A collection was taken up the day our town entertained one hundred returned men from London, and in many ways the funds were provided.

Mrs. Claude Blewett, of London, was in charge of the work during the greater part of the time. Her salary was paid by the Institutes Branch of the Department of Agriculture, and too much cannot be said about the excellence of her methods, her tactful leadership, and her long, tiresome hours of work. This willingness to work was contagious, and few in town escaped its influence. The bank boys carried in hundreds of sealers, or nailed up boxes or did any odd job that demanded attention; the high school girls washed sealers, the Mayor sometimes built the fire or carried sealers to the store-room upstairs; the small boy ran errands and picked chicken bones with zest as a reward of merit; the man across the street spent several evenings unpacking chickens and hanging them up on nails, and so it went.

Mr. Fred. McBeth, who has had charge of the Red Cross kitchen in Hamilton for the past three years, visited the Parkhill Centre on an afternoon when the women were serving tomato soup to all comers. The soup was decidedly good, and Mr. McBeth urged the women to make it in quantities for overseas. To help along this suggestion, which was received enthusiastically, Mr. McBeth sent two thousand sealers, rings and tops, the Red Cross cases for shipping the goods, a bag of sugar and other things, and even offered to pay the freight bill on all that he had so kindly sent. Mr. McBeth again visited the centre when the first chickens came in, and gave a demonstration and valuable advice and inspired the workers to further efforts. The Hospital Commission also were glad to help, and sent several hundred empty sealers from the convalescent homes in London. These were returned filled with pickles and jam which were good. As a proof of this, we quote a convalescent soldier who was enjoying the peach jam, and who remarked that the peaches were good and the women who sent them were "peaches" too.

Besides the 700 quarts of canned fruits and vegetables and pickles that were sent into the Convalescent Homes in London from this one little canning centre, there were sent overseas to the hospitals in England and France: 1,064 quarts of jellied chicken, 500 quarts of chicken soup, 850 quarts of tomato soup, 350 quarts peach jam, 250 quarts sweet tomato pickle and celery relish.

Nor was the work done for the soldiers and the community all that the centre accomplished. The story of the good things being made, of the new recipes, of the methods whereby one could can and not be afraid of the material spoiling—all these things were whispered, and the interest in the Centre grew bigger and women came, saw, tasted, and were convinced. Requests for instructions and for recipes met with smiling encouragement, and the smell of tomato soup in the making greeted one on every street. Never before were the shelves of town and country housewife in this vicinity so well stocked with bottles of the summer garden's treasure, stored up for the winter. The mothers whose lads were overseas worked there together with the big pain in their own heart. They touched shoulder with the woman who worked next, and the knowledge that she, too, eased her anxiety and heart-hunger with the work which her hands could do, gave the fainting fresh courage. Women learned new respect for each other. The fact that the woman who had learning or riches or gifts which show in the public eye could also scrub and chop onions and work until she was too tired to sleep brought a new light to some. The fact that the woman whose chief gift was housewifery had great executive ability, great endurance, and great patriotism was a revelation to others. The women liked to work together. The sunny room, its companionship, the removal of the confusion and dirt of canning from the home, and its convenience and the excellence of the equipment all made their appeal, the day of splendid isolation for our women is over. Henceforward we shall do all our work that we can together. This was the decision of every woman who helped.

THE NEEDS OF THE COUNTRY BOYS AND GIRLS.

DR. J. B. DANDENO, INSPECTOR OF ELEMENTARY AGRICULTURAL CLASSES, TORONTO.

My time is short and I will have to be brief. The proper kind of teacher we will have to secure for the rural school is the teacher with the rural view. We will have to have schools suitable for the boys and girls to study in. We shall also have to have trustees who know something about the school business, medical inspection and all the rest. We shall have to have the women take a more important part in the work, and that means women trustees. When we have women trustees in the country the needs of the boys and girls will be better looked after.

Dealing first with the question of the teacher: The Dominion Government some years ago realized the needs of the country school and appropriated \$10,000,000 to be used for the purpose of what is called agricultural education; but that is so broad that it includes a great many things that might be carried on in the rural schools. That \$10,000,000 was divided among the different Provinces in proportion to population. The proportion for Ontario was divided into two parts, the larger part for the Department of Agriculture and the smaller part to the Department of Education. It is this latter part to which I want to call your attention just now. At present there is well on to a thousand schools in Ontario teaching agriculture, and through that agency they are doing an enormous amount of good. Part of this money is devoted to the training of the teachers. Some of it is used to train the teachers at Guelph, pay their expenses there; and if any of you have teachers who have not taken that course all you have to do is to ask them to take it and it is provided without expense. In that course the teacher is given instruction in the line of bacteriology which is the basis of all infectious diseases. They are given instruction on how to manage the school, how to keep the grounds in order, how to make a good garden and to give the children outdoor exercise. There is no difficulty about managing it when the teacher makes a start, because the pupils are always ready to co-operate. If the teacher says on some fine day, "Let us go out and work in the garden," you don't find the pupils saying, "Let us take up our lessons in grammar." There is also given the teacher instruction on this question of medical inspection. The teacher can do a considerable amount of good work if you will only let her. I was at a school not long ago, and I asked how many of them brought their lunch to school and I found quite a number of them did, the teacher included. I asked if they had anything hot to drink, and they said "No, just the ordinary cold lunch." I said, "Why not get a coal oil stove and have a hot lunch?" They said, "That costs money." Now the Government provides for that. The Government is not so far behind; the money has been there for that purpose for twelve years. The money may be used for the purpose of purchasing equipment of that kind, because it relates to the teaching of agriculture. You can also purchase wash-basin and towel and equipment for out-door work in the garden.

One outstanding thing in the country is the out-buildings. It is not medical inspection that is the most important, but the abominable outside closet that is the curse of the country. Go around and see it and it will make you shudder. Why should not these country boys and girls have the same comforts that we have in the city? That is what makes some of the people in the country bitter against the people in the city. Look at this technical school, it cost millions and has every modern comfort? Then go out to the country school, and you find the most abomin-

able conditions. It is up to you women to visit the schools and look after these things. These modern improvements can be had in the rural schools if they are only looked after. These boys and girls that go to the country schools are the very best of Canadians, and are just as much entitled to these comforts as the city boy or girl. I visited a school in the eastern end of the Province, and I said to the teacher, "Why don't you have a school garden?" She said to me, "How could I make a garden out there. Just look at the yard all full of rubbish." I said, "Take the children out and see what can be done." She did so, and in ten minutes the whole grounds were cleaned up, and before I went away they had a man plow up the garden properly. I visited the school after they had harvested their crop, and every little tot in the school was interested in it, and the little one-hundred-pound-teacher more than any of them. They realized \$9.53 for their crop. What did they do with the money? They gave it to the Red Cross. You ask these boys and girls how many of them are willing to try it again next year, and every one of them will go into it with the right kind of Canadian spirit. The trustees have first to pay out the money for these things, and then they are reimbursed by the Government for the expenditure that they have made. There is a limit to the amount that the Government will give. It is \$30. What does this equipment include? The first thing would be a basin and towel. It makes my blood boil when I think of the outbuildings in some of the country schools. Very often they are fifty yards away and the poor child has to plow through the snow to get to them, and they will hold off and hold off, and that is very dangerous to the health of the child. This medical inspection is very important, but there are some things back of that, and this is one of them. Every school building should be fumigated once in a while. Buy a coal oil lamp for the noon lunch, and use it also for evaporating the formaline for fumigating the schoolroom. Down in Dundas County not very long ago we met a boy of eleven years of age and he was taking home the milk can. The boy, I was told, was up every morning at five in the morning to haul milk, and he was handling 80 lb. cans. Why was that? His brother and hired man had enlisted. When you go out in the country you will see a man eighty years of age trundling behind a plow in all kinds of weather. Young and old are doing their bit there. The boys and girls in the country schools last year grew \$10,000 worth of produce. Next year they are going to double that. Forty thousand eggs were sent out to the children, and in the county of Perth they grew 20,000 chickens. Perth, Middlesex, and Dundas are some of the leading counties. That is what agricultural education is doing. I think we can well afford to spend a few hundred dollars and let the boys and the girls in the country have some of the comforts enjoyed by the city children.

Q.—Why does not the Government send literature to the trustees so that they may know that the Government will do these things for the schools?

A.—Every one of the trustees has received this literature four or five times. They receive it but they won't read it or act upon it.

A MEMBER: Some of them cannot read. If anything is to be done the women of the Institute might just as well make up their minds that they will have to do it.

A.—I was at a school where they had a teacher who had been to Guelph and had taken the course in agriculture. One of the trustees said to her, "This is good enough, it is what we have had for years." The teacher said to the pupils, "We will see what we can do." They closed the school for part of the afternoon and went out and cleaned the school yard up. After it was done the same trustee came along, and when he saw the improvement that had been made he said, "We

will help you out," and they had the ground plowed for them. This teacher appointed a School Progressive Club, and a committee of boys to look after the out-buildings, and they did it well. Then they had nice curtains on the windows and flowers in the school windows, and a coal oil stove, and made soup for the children who brought their lunch. That teacher went further, and had napkins at the noon lunch for the pupils, and these are things that are a great help. That teacher so improved the school that the trustees will now give her whatever she wants, and she gets a larger salary than any teacher in the neighbourhood. I said to these trustees, "Keep that teacher; don't let her go."

THE CHAIRMAN: We should give our service at the polls and in the Victory Loan campaign. Let us carry that thought away from this session. We country women have an opportunity to do something that we never had a chance to do before, to use the franchise, and we have these Victory Bonds that we can buy. Let us do our best.

SUPERVISED PLAYGROUNDS.

MRS. S. G. COLE, FORT WILLIAM.

When I was asked if I would give a paper on this subject, I said, "I do not suppose I could give a Toronto audience anything new about supervised playgrounds," but I was reminded that the large majority of those present would be from places where there were no supervised playgrounds, and then I realized that here was a great opportunity to do my part in enlisting your interest in this very important movement. While I am not a public speaker, I trust something I may say will send you back to your homes determined that you will work for supervised playgrounds.

"Once upon a time, in the days of the tyrant kings of the ancients, a boy refused to lift his hat to the king, who for the offence sentenced the young lad to the executioner's block. But since he was a great favourite in the town, on account of his wonderful athletic feats, the people pleaded with the king to give the boy a chance to save his life. The king asked him to swim the turbulent river which flowed through the town, with a bucket tied to his neck. There was little chance for him to swim, even without the handicap, but it was swim or die. The cumbersome bucket was tied to his neck, and he plunged into the mighty current, making fine progress under cheers of his sympathizers on the shore. Even in mid-stream he was seen successfully battling the fierce current, until suddenly their bobbed up from the water a dark figure who began to drop stones into the boy's bucket. Every rock that landed in his bucket made his case more hopeless, and soon he was sunk into the surging waters."

This was during the Dark Ages. But a similar scene is enacted before our eyes many thousands of times these days, in this and other cities of America. Through no choice of their own, children are thrown into the river of life and they have but one choice—swim or die. Many of them are just now in mid-stream, struggling under a mighty handicap, and we, the servants of the king, standing on the bank, are too engrossed with selfish interests to give them even a cheer, much less to attempt to remove the handicap—the bucket of hindrances tied to their necks.

You will all agree with me, that the children are our best asset. How can we better work for home and country than by conserving the youth of our land?

Nearly one-third of our whole span of years is spent in getting ready to live. Why this first one-third? And, if there is a fine purpose in it, should not more attention be given to the way these years are spent? This period of Christ life is summed up thus: "He increased in wisdom and stature and grew in favor with God and man." He grew mentally, physically, spiritually and socially. This should be the normal growth of every child, and I know of nothing that should be of more interest to women than to see that this development is made possible for our boys and girls, who will be the men and women of the future. Surely there was never a time when this was more necessary than it is to-day, on account of the devastation of this cruel war.

Phillips Brooks has said. "He who helps a boy become a strong and good man, makes a contribution of the first order to the welfare of society." Most people would be glad to make such a contribution, if they only knew how to go about it. Some are trying boards of health, juvenile courts, reform schools, or sermons. Many others, however, believe it is better to form than reform, and are turning to properly conducted playgrounds as the agency through which to work. We are trying to make the playtime, which covers the major part of the first third, count positively in the right direction.

Dr. Josiah Strong declares: "The impulse to play is as natural and normal as the inclination to sleep, or the desire to eat; and when we understand its true meaning, we find that it is not simply a permissible thing, but a divinely ordered thing. If God gives the impulse, man ought to provide the playground."

The playground movement is a comparatively new thing, but it is by no means "modern," for we read that long ago, when the question was put to the citizens of Athens, whether they should build a great school or open a playground, they decided in favor of the playground, and George E. Johnson, an authority on boy problems, makes this comment: "It came to pass that, in the course of years, the citizens of that city advanced so far beyond the rest of the race, that, in all the centuries since, the nations that have gone on building schools and neglecting playgrounds have not been able to catch up."

In 1906 the National Playgrounds Association of America was established, and to-day we have on this continent several hundred cities carrying on playgrounds.

Sociologists and educators recognize in this movement one of the greatest educational forces for the promotion of good citizenship through moral and physical development. A good illustration of what cities which have tried playgrounds think of them is given in San Francisco. In spite of the enormous financial burdens in rebuilding their city after the earthquake and fire in 1907, they voted a bond issue of \$741,000 for the purchase of playground sites, and an appropriation of \$20,000 in 1908 for running expenses.

In the near future the questions which the manufacturer wishing to locate in our cities will ask are not so much concerning how much land he can get free, or how many years freedom from taxation, but rather: are you planning for good, well-administered schools and properly supervised playgrounds, small open air spaces, larger parks, with plenty of opportunity for the children to grow up in a normal, open-air, healthful existence? He does this from his broad humanitarian viewpoint, as well as for his own advantage and his own pocket-book. The open air is the breath of God and it heals for ever.

The study of the great white plague has done much to create playgrounds by the hundreds in the old land. The difference between a good child and a bad child is simply the difference between well-directed and misdirected energies.

I believe that properly supervised playgrounds will do more to lessen crime than all the laws that could possibly be put on the statute books. In proof of this, I might quote you nearly all the juvenile court judges of the country, because they all agree in this. It was my privilege, while visiting in Detroit, to obtain special permission to attend a session of the juvenile court, and afterwards the judge told me that they seldom had delinquents from districts where there were supervised playgrounds. The Winnipeg judge states that the moral standards of the young have been raised by supervised playgrounds.

Jane Addams, of Hull House, Chicago, is authority for the statement that in that city the saving of expenses connected with juvenile delinquents, through the introduction of supervised playgrounds, has more than balanced the enormous cost to the city of their equipment and support. The Chicago system is, without doubt, the most elaborate and the most expensive in the world. \$11,000,000 has been spent in a decade, and \$5,000,000 annually upon its recreation expenses, and yet Jane Addams says, with conviction, that it pays the city in dollars and cents, as well as in the character of the boys and girls. The playground movement is alive with tremendous social possibilities. Especially in cities where there is a large foreign section, this feature, hand-in-hand with the school training, would do much to inculcate ideas, yes ideals, of good citizenship.

Some people oppose the idea of play leaders. They are missing the all-important point. The playground is to them an agency for physical development only, and, even from that viewpoint, they are wrong, because the unsupervised playground is the place for the survival of the toughest, or the bully. Why teach a child to play? One might as well ask why teach him anything? Play has always been taught. True mothers have always supervised the play of their children, fashioned their toys and taught them their games. Play was the mother of education. Froebel himself based his plays on what he had observed mothers do with their children. Species and races have advanced proportionately as they have played and taught play, as we have already noted about Athens.

I was asked to tell something of the development of the supervised playgrounds movement in Fort William, which I had the honour of organizing. In January, 1918, the Local Council of Women asked me to give a paper on supervised playgrounds. I hesitated to undertake speaking on such an important subject. As a teacher, I had, of course, felt the need of supervised play, but, not until I had read a large number of pamphlets, and eight or nine books dealing, more or less, with the subject, did it occur to me that perhaps it was my task to help interest the public in the belief that supervised playgrounds were a great need in our city.

Possibly the most difficult feature of the work was getting people to realize that mere playgrounds were not enough, that they *must be supervised* in order to attain the desired results.

I interviewed many prominent citizens, and addressed three organizations. Early in the following year, I again spoke before the Local Council of Women, and placed on the table a written request that the Local Council recommend that the Board of Education open one supervised playground for the summer months. This the board declined to do. An ex-Mayor had placed some apparatus on a vacant lot, and it was used for a time and then ignored. Why? Because there was no one to lead the games and protect the weaker ones. So I went to this man and asked if I might have the apparatus (since it was not in use where it was), if I could secure a school ground and a director. He immediately said, "Yes." (In-

cidentally, I might say that, being a man, he thereafter received all the glory for the supervised playgrounds of Fort William. By personal appeal to the members of the Board of Education, I secured the use of one school-yard.

I had not been able to find a woman who cared to work for the movement, and finally asked two men, the Y.M.C.A. physical director and a social worker, to form a committee with me and bring things to a climax. We asked the City Council for \$600 to equip and supervise the ground for two months. I had sent a letter to 114 prominent men asking their attendance at a meeting to consider the supervised playgrounds. At this meeting in April, an address was given on "The Need and Advantages of Supervised Playgrounds," and a constitution was framed, and a commission formed. The next day we heard that the city could not finance our project, so there was nothing to do but wait until the next January, when we asked the City Council to submit a by-law for \$10,000. The educational campaign had been successful, and the by-law carried with a majority vote that was unexpected, even to those who had worked the hardest for it.

For the past four years we have had during the summer months six well equipped school-grounds, with a lady and gentleman in charge of each, and a general supervisor.

PROGRAMME.

This consists of a well-balanced programme of folk dances, clay modelling, flower making, story telling, raffia, kite-making; organized games, including both home leagues and matches with other grounds; group games for the smaller children; sand boxes, swings, teeters, slides, and other equipment.

This year we had a moving picture machine. We had 800 at a picnic. In the competition among the city playgrounds over 500 games were played, and 48 teams entered the matches in base, basket, volley, dodge and long ball, and athletics. For two years we held Playfest. Past two years, helped with Red Cross day.

First season, two accidents, three broken bones; none this year. First aid equipment on each ground for minor accidents. Attendance for year, 90,734 for the 46 days, and an average daily attendance of 1,972.

Possibly the most obvious good resulting from the supervised playgrounds is the spirit in which the boys and girls work together. In school it is necessary to train children to be independent and work individually; but on the playground they get the other side which is so necessary for life, and then, too, it breaks down class distinction, and it trains them to take defeat in the proper spirit.

If any of you are thinking it is not opportune to start new work in war time, let me say that this is one of the best ways in which we can "Keep the Home Fires Burning." A war like the present one makes it more urgently necessary that all our children should grow up healthy, vital and vigorous, and England is enlarging her playground policy, not curtailing it, just now.

The playground movement is the answer to a fundamental need of human nature, and it has now been established long enough on this continent to prove that it is neither an experiment, a fad, nor a failure, but a distinct and decided success.

Will you carry this thought with you. A well supervised playground is one of the richest blessings an enlightened community can confer upon itself.

THE GIRLS IN THE INSTITUTE.

ETHEL M. CHAPMAN.

I am sure we have never had a convention where so little time was wasted in superficial things, and where so many vital problems were seriously taken up. Things have changed so tremendously since the last convention that even the old lines of work present new problems, and the problem of the girl to-day is just as new as anything else. I suppose there never was a time when the parents of the world were so much concerned about their boys. Everything they had hoped for them, except the one fundamental thing, a virile manhood, has been swept away like tinder in a blaze that will be quenched with nothing less than the whole of their lives, ambitions, everything. The picture is so overwhelming that we lose sight of the quieter drama going on in the wings where the boys' sisters sit, a little heart-broken and lonely and knitting. They don't realize that the thing which has shifted the direction of their brothers' careers is changing life just as surely for them; and their fathers and mothers, who ordinarily would have seen this for them, are, naturally, so absorbed in the more imminent dangers for their boys that the girls' future is left to take care of itself.

In an exclusive ladies' "finishing school" two girls came to the principal and said, "We've been thinking about what we're going to do." The principal was surprised. There was usually just one popular thing for the girl graduate to do. "First, we've decided we're not going to be married," they began. This was more surprising, but the girls' explanation was logical. Their brothers were at the front, all their friends were at the front or on their way there; many of them had been killed; it was not unlikely that the girls would never be married. One of them had decided to enter the university and qualify for a profession which would give her a more broad and useful and interesting life than the teas and matinées of a woman of leisure without home responsibilities. The other girl's brother had been killed. She was going to take a commercial course and go home to take the place in her father's business that her brother would have filled if he had lived. Their cases will be typical of thousands before the war is over and for some years after.

Of course a great many girls have been working and earning their living for years, but it has too often been a makeshift affair. The girl wanted something to "fill in" from the time she left school until the time she was married, a job which would give her enough money to support herself, perhaps, and to buy the frills that every girl wants and which, at present prices, no father with a moderate income and several daughters can afford. The idea that her work would be only temporary has been responsible for many a girl's lack of training. Almost any occupation will do to mark time, but marking time is a hopeless outlook for an indefinite period, and many of the girls who least expected it three years ago will be earning their living for the rest of their lives. The new conditions make it important not only that a girl should be trained for some kind of work which will bring her a good living salary, but that the work be something through which she can have a fuller life and express the best of herself.

For instance, the normal girl is a homemaker and fond of children. As there will be fewer new homes for the next twenty years, the girl will have to find an expression for these instincts in some other way. She may find it in trained nursing,

where she can use her head and her heart and her hands in ministering to people just as she would in her own house. She may get it in teaching, where she can guide and direct young life as she would if she had children of her own. She might find it in various forms of social service work, or in trying to create a home atmosphere in a residential college or a soldiers' convalescent hospital. The profession known as institutional housekeeping is especially adapted to the girl who has had house-keeping experience at home, and the professional training has not the terrors of going back to school.

But there is another want in the new social conditions which neither a girl's work nor her education can fill. Many a mother, over-anxious about the time when her daughter begins to show an unusual absorption in sentimental fiction, to go day-dreaming about the house, to start at the first jingle of the telephone, considers it her maternal duty to crush out this sentimental foolishness by seeing that her time is occupied with lessons, athletics, embroidery, etc. She forgets that the emotional nature awakening within the girl is the beginning of everything creative in her life. It was put there perhaps for the sake of the creation of new lives, but it is just as surely the beginning of a book or a picture or a song or any other piece of creative work. Anyone who ever accomplished anything worth while had to have the dream first, and the girl's imagination and love of romance may become the most vital force in her life. In normal times this worked itself out naturally. Girls had their brothers and their brothers' friends at home to play with, and there were fêtes and carnivals and dances and plays, and eventually there were weddings. There won't be so many weddings for the next few years, and there won't be the wonderful experiences leading up to them. The boys are finding adventure and excitement enough, horrible as it is, in the only course open to them. What about the girls? To make up the fulness of the girl's life we want to supply her with reading of the right kind—and we are in a good position to do this since we have travelling libraries at our service, and I am sure Mr. Putnam would be glad to have a few special selections made up for the girls. We want more amateur plays and pageants where the girl can lose herself in "living out" the experiences of others.

A few years ago it was the custom to say that every girl who was born in the country should stay there, whether it was to her own advantage or not. We know now that it is as selfish as it is useless to tell any girl to stay on a farm unless she can have as full and useful a life there as she can find in a city or anywhere else. Fortunately we are coming to the time when the girl cannot find bigger opportunities in any way than she can have if she has the good fortune to be born on a farm and to have a home there where she can work and be useful. In the first place she is working in one of the industries that are absolutely necessary and which is going to be a great deal more necessary as time goes on; she can help directly in the production of food. We have every indication that before long there will be a big movement from the towns and cities to the country. The girl who is there to help in building the new community will have a better opportunity for social service work than she could have almost anywhere else outside. There is one thing, however, that is wrong on the farm. I have in mind one farm which is typical of many. The father is a good manager and the returns from the farm have been high. He has four daughters. These daughters have contributed as much in actual financial returns as four boys of the same age. They have a beautiful home and the girls will eventually get the money coming in now, but the point is this: These girls who are contributing so much in actual money value to

that farm haven't \$50 to buy a Victory Bond, while almost any girl working in the city can buy one.

Let us consider, then, just what we can do for the girls in our own communities. We cannot do anything for them until we get in touch with them. Possibly the best way to get them interested is through the short courses in domestic science, home nursing and dressmaking, sent out by the Department. I was never at a Women's Institute yet where there was not some woman that I could learn a whole lot from, and once in the Institute the girls cannot fail to be helped by the influence. Then we find that in almost every community there are school teachers who can help a great deal.

Then supposing we think up some economic scheme by which girls can co-operate and make money for themselves. You heard Mrs. Wilson's report of the canning centre at Parkhill. Would it not be a fine thing if in more places the girls would have their garden plots and can the vegetables and sell them? Why not have egg circles and poultry clubs the same as the boys? You heard the Premier and Dr. Creelman and Mr. Hanna speak of the necessity of greater hog production. Why could not the girls take up that line of work? If we once get the girls organized there will not be difficulty in getting help from outside in the way of instruction and possibly in marketing, though no doubt they could get this from their fathers.

Then we will take another phase of the girl problem—the social side of the life of the girl in the rural district. You will find if you look back, say five or ten years, that there was what was commonly called a dearth of social life in the rural districts. You know that in some districts you will find now one fine old farmhouse after another with a bachelor living there and his sister keeping house for him, and maybe only eight children in the school section. I believe one cause of this was that nobody ever took the trouble to shuffle them. In some of these small communities the people all went to the same church. Consider the young people who would be there. They played together before they went to school, they played together at school and afterwards, and they were so much like a big family that they never fell in love with each other. If we can get a literary society or something else going so that the young people will go from one community to another, then you will find things happening. During the last few years before the war, however, farmers began to get automobiles, they went farther from home and formed a larger circle of friends. The District Representatives formed clubs of the young men, and the young men brought the girls with them and the social life was beginning to come around to what we wanted, when the war came and upset things. Now we have to try and make up the social loss to the girls.

Take the fine, normal type of girl, who is a splendid home-maker and who is fond of children, she is going to suffer because there won't be so many children for a few years to come. If we had our girls in our Women's Institutes we could supply this want by giving them a chance to look after other people's children. I know a district where each girl took two children from the city for two weeks in the summer and kept them at her home. It was a fine thing for the children to get out into the country. They were taken into the woods and for automobile rides, and when they went home some things were sent home with them. But it was a finer thing for the girls; they had a chance to know what it meant to mother these poor little waifs for a while. At another Institute, at Parkhill, the girls take charge of a story-hour once a week. They gather up the children of

the town for an hour on Saturday afternoon, and the children have a delightful time. Then we find in the social life of the girl more important problems than these. I was delighted with the way the discussion of the question of venereal diseases was handled by Dr. McMurchy and Dr. Patterson. The girl must know all these things, but she should also know that everyone wants to be decent, that it is her duty to help them—that if her brother has the privilege of being one of the country's physical protectors, she has the privilege of being one of its moral protectors.

Then there are the girls who will be making the country's new homes. We have always recognized the importance of a training in housekeeping and home-making as a preparation for this, but the war has given the girl a bigger responsibility than just housekeeping.

I wonder if you know the lines of Rupert Brooke:—

Blow out ye bugles over the rich dead!
These laid the world away, poured out the red
Sweet wine of youth, gave up the years to be
Of work and joy and that unhopèd serene
That men call age, and those who would have been
Their sons, they gave their immortality.

We will not know for another generation how much poorer the world is through the loss of "those who would have been their sons," but there are others of the fine calibre of the soldier gentlemen who come back with broken health which can never be entirely mended. They could still give their children the inheritance of courage and unselfishness and fine family traditions and ideals, but it is the opinion of physicians of authority that their children would have to depend largely on their mothers for physical endowments, and little attention has been given to the physical perfection of the Canadian girl. She has not been encouraged to live outdoors, to dress right, to take long walks or swim or ride horseback. She has not been deprived of a "good time," but she has found it largely in matinées and tea parties and dances and motoring, with a little tennis in season. She doesn't need play for the sake of recreation so much as for her own development and for what it will mean to the coming children.

Last summer a girls' vacation camp was established on a wooded lake-shore. One afternoon three outsiders passed the camp—an artist, a journalist, and a physician. The girls were dressed in the most appropriate outdoor clothes. Some of them were carrying driftwood for their fires, some were swimming in the lake, others were playing folk games on the sand. The spectators were impressed. "What a picture they'd make!" exclaimed the artist. "What a story they'd make!" said the journalist. The doctor was pretty sober. He said: "I'm not thinking what kind of picture they'd make, or what kind of story they'd make; but my! what mothers they'd make!" This should be the principle for more of our girls' physical recreation.

The girl who marries may also have to face an economic problem which she is not fitted to meet. Cases like the following will be repeated by thousands:—A medical student enlisted and came back from the front with his right hand gone. He had had every promise of becoming a famous surgeon. He is now watching a switch at a railway crossing. He will soon find some other work no doubt, but his income will be a small fraction of what it would have been normally, and it will not be enough to support the kind of girl he knew among his college friends unless she has learned to live more economically than the average Canadian girl.

This is where the technical school and experimental work in the kitchen at home come in. The girl who can make her own clothes, who understands foods and knows how to cook them, can run a home on considerably less than the amateur housekeeper. Occasionally it is possible, too, for a woman to make some money herself without interfering with her life at home. A clever girl, a music-teacher, who was engaged to a soldier, had planned to take a special course at an expensive conservatory which would fit her for a good position as an organist. Her people were willing to have her go because they had few hopes of the young man returning and they wanted to see her equipped to earn her own living if necessary. Then word came saying that the soldier had been gassed and would be sent home; in a year or two he should be pretty fit for civil life again. The girl's father saw no use in her specializing as an organist if she were going to be married, but the girl saw farther. The young man was an artist; his work kept him indoors. If he was to keep well after this he would have to be out-of-doors more and his income would be correspondingly smaller. If his wife were a qualified organist she could add considerably to his income without neglecting things seriously at home. With the majority of the girls in our Institutes, however, we will consider incomes from such side lines as gardens and canning, poultry, bees, and even the growing of flowers for the market, and we can help to bring more knowledge of economic housekeeping through the short courses in Domestic Science, Dressmaking, and Home Nursing.

Just a word regarding the organization of the girls. I used to think that the ideal arrangement was to have separate Girls' Institutes. I feel now that the girls should have some connecting link with the women who have experience and judgment, who can see things ahead that a girl could not be expected to see. I know there are a few large towns where there are too many girls and women for one institute, and where they do not need each other so much; even in these places the girls would be better to have an advisory board or, at least, an honorary president from the women. In the smaller centres I believe it would be best for both the girls and women to keep together and for the girls to take up special lines of work of their own in their own way, at the same time having the guidance of the women. In Streetsville they have a very good arrangement, where the girls meet with the women every week to do Red Cross work, and during the winter they have meetings with the Junior Farmers. These union meetings take the nature of a literary or dramatic society. I think, since it is important now that girls as well as boys know as much as possible about civic affairs, it would not be a bad idea to form some Civic Clubs for the young people. The programmes could begin with something as simple as a debate "Resolved that it would pay us to have an egg circle." or a boy might give an address on "What I would do if I were in the County Council." They could study how we are governed as a municipality, as a province, as a Dominion, and as an Empire. When this was done they could begin to study the civic problems of the nations at war, and I believe they would have enough material to last as long as they wanted to have a club. Anyway, apart from the educational purposes it is most important from a social standpoint that the young people get together with some worth while interest, and no interest could be better than a movement for the betterment of country life.

TEMISKAMING INSTITUTE.

MRS. PARSONS, COCHRANE.

I am not going to give you a report of the district, but a few little side lines of things that have been happening up there. There are now twenty-five women's branches and two girls' branches. At the meeting at Englehart we had 125 delegates with an attendance of 150 ladies. Our district starts at North Bay and ends at the North Pole. We haven't an Institute up there, but we have one pretty far up. We go east as far as the Quebec border and west as far as we like. There was only one branch that was not represented at the annual meeting. Some of them had suffered everything from the fire, all that was left was ashes and destruction, and yet they came out and did glorious work. There was not one branch that did not do Patriotic work or Red Cross work. I will mention a few special spots. I am going to take you to a little getting-off place up the line called Nushka. There was not a house left there after the fire. It is a little French-Canadian village. When I went there the local priest loaned us the Roman Catholic Church that was being built. He sent a returned soldier to be my interpreter. They asked me if I would come back again and help them out in their first meeting, after I had organized them, and I said I would. They said to me, "What do you expect from us?" and I said, "Nothing." Then they said, "What do the Government expect us to give them back?" and I said, "Nothing." They said, "Are you just doing this for our good?" I said, "Yes." They sat back and could hardly understand why the Government should come out and do so much for them. I said we want the French people to have all the advantages that are enjoyed by the English people. They said, "What shall we do?" I said, "Ladies, I cannot tell you all you can do to-day, but you want a sidewalk to your church and your meeting place"; and now they have their sidewalk down. They had a party, and made sufficient money to buy the boards, and the men came out and did the work.

Now I think I will take you to Hearst, that is about 125 miles from Cochrane. We organized there a woman's branch and a girl's branch. For the winter months the girls are joining the women, and when the spring comes they will divide. The work that has claimed our greatest attention has been in connection with maternity cases. They have some fine women in that district. Perhaps you have heard of the district in Thunder Bay where they have no doctor. We have just such cases as that in the Temiskaming district. We are far away from the doctors and far away from the nurses, and we have very little money. We have on the platform to-day Mrs. Willet, who is president of the district. She was a matron of a hospital in her younger days, and so we got her to undertake this work in her own way. I went with her to many cases, and I followed her to others, and I can tell you if you could only go with her to some of the cases it would make your heart pretty full. She is up and down the line day and night. Last week she had a tramp of seven and a half miles after taking home one mother and her babe. The way the maternity work is being carried on is this: There is a hospital at Cochrane, and it has been very largely equipped with money that the Women's Institute earned. The doors are open to any cases the Women's Institute send. Mrs. Willet has brought in 90 maternity cases, and she has taken 87 of the women to their homes with their babies. We have a baby day planned for and partly carried out. We are going to have a baby day at every one of the branches during the coming year. Instruction is given on what to do when the baby comes and

how to feed the baby. I went to Kapuskasing, where the returned soldiers have gone to take up farms, and gave them a talk, and in the times to come we will have an Institute branch there.

REPORT OF NOMINATING COMMITTEE.

The Nominating Committee, composed of MISS GERTRUDE GREY, Toronto; MRS. H. E. TODD, Orillia; MRS. GEO. EDWARDS, Komoka; MRS. R. V. FOWLER, Perth; DR. MARY MCKENZIE-SMITH, Gravenhurst; MISS SUSIE CAMPBELL, Toronto, was appointed by the Convention to co-operate with the Department of Agriculture in:—

1. Naming persons to represent the various districts in Central Ontario.
2. Naming a committee to pass upon appeals to be made and upon information to be sent to the Women's Institutes.
3. Naming a Convention Committee and a Committee on Medical School Inspection, and such other committees as are thought necessary to an aggressive and successful prosecution of the work throughout the year.

This Committee met and appointed the following committee to advise as to Methods of Presenting appeals to be made to the Institutes by various patriotic organizations:—

METHODS OF APPEAL: MRS. Geo. Brodie, Newmarket; Mrs. P. W. Hodgetts, Clarkson; Dr. Margaret Patterson, Toronto; Mrs. H. W. Price, Toronto; Miss D. M. Sutherland, Toronto.

CONVENTION: Dr. Margaret Patterson, Toronto; Miss Susie Campbell, Toronto; Miss A. Stephenson, East Toronto.

MEDICAL SCHOOL INSPECTION: Dr. Mary McKenzie-Smith, Gravenhurst; Dr. L. K. Sirrs, Campbellville; Mrs. (Dr.) Wilson, Parkhill; Mrs. A. P. Thomas, Beamsville; Miss H. Beardmore, Port Credit.

BETTER HEALTH CAMPAIGN COMMITTEE: Dr. Margaret Patterson, 97, Walmer Road, Toronto; Dr. Annie Backus, Aylmer; Dr. Helen MacMurchy, Toronto; Mrs. P. W. Hodgetts, Clarkson; Mrs. W. H. Ker, St. George; Mrs. A. P. Thomas, Beamsville; Mrs. J. E. Brethour, Burford; Mrs. G. C. Creelman, Guelph.

MEMBERS OF PROVINCIAL COMMITTEE (See page 12).

REPORT OF COMMITTEE ON RESOLUTIONS.

Moved by DR. MCKENZIE-SMITH, seconded by MRS. R. V. FOWLER, Perth.

1. Resolved, That this Convention would like to put on record our confidence in Mr. Hanna, our Food Controller. After hearing from him the difficulties, complications and obstructions with which his department has to contend, we have been brought to realize that results can only be brought about slowly, and we would like him to feel that when we go home to our different communities we shall use all our influence in our Institutes to co-operate with him in whatever he asks us, believing, as we must, that, as he is in possession of all available information, he must necessarily be in a position to know what is best to do, and we would like him to feel we "stand behind him." And we would respectfully request that all appeals and advice to be submitted to the Women's Institutes be passed upon by a committee of the Women Institutes as to the form in which the appeal is to be made.

2. Whereas, That in view of the great prevalence of venereal diseases in every part of the country and of the extremely serious results both from the standpoint of the physical and mental impairment of the individual citizen and injury to the state, and also in view of the fact that venereal diseases are definitely preventable if proper means of education, control and treatment are undertaken,

And in view of the fact that there are many persons in the community suffering from venereal disease in an active form, who are liable to communicate the disease to others,

And in view of the fact that there is at present no legislation which enables the authorities to cope with the situation,

That, therefore, this meeting places itself on record as in favour of the institution of careful methods of education in the danger of venereal disease among the people generally, and also as strongly in favour of the passing of such legislation as will make it compulsory for infected persons to undergo treatment until cured. And that with this end in view the meeting request the Government to add venereal diseases to the list of communicable diseases under the Public Health Act.

3. Whereas the Women's Institutes have through Medical School Inspection carried on in various sections of the Province, demonstrated the practicability and need for such work,

And whereas they have had liberal support in funds, public opinion, and personal services from the residents of the communities concerned,

Be it resolved: That the Women's Institute Branch be given the necessary funds to extend this work during the season of 1917-18, with a view to making definite recommendations at the conclusion of the year's work, as to the practicable promotion of most efficient and equitable organizations for the rural districts.

4. In view of the fact that there is a shortage of milk and sugar and that these are both necessary foods, especially for children, therefore, be it resolved that the Women's Institutes petition the Government to prohibit the use of cane sugar for the manufacture of candy, and the sale of ice-cream, as a luxury.

5. In view of the fact that recreation (or play) is now known to be an absolute necessity in the life of any individual or community, and that neither can be at the best either physically or mentally without a certain amount of wholesome relaxation derived in this way, and in many districts there appears to be a lack of any place where organized recreation can be carried on, and as in most of these districts there is a certain amount of land set aside for the agricultural fairs, and, of course, in use only a few days in the year, therefore, be it resolved, that the Women's Institute interest itself in this matter, and where there is no common recreation centre under proper supervision, they petition the proper authorities for permission to use the Fair Grounds for this purpose.

6. That the Ontario Women's Institute is entirely in favour of the extension of women's labour, so that it may be employed as far as it may be needed and as far as it can be made possible and profitable, and that equal pay be given for equal work.

7. That in view of the fact that the prices of all staple and necessary foods are increasing to an alarming extent, and that beyond doubt there are within our own borders families who may be seriously affected by the present high cost of living, and while it is being continuously pointed out to us by our cleverest men and women that Canada's greatest asset is her children—be it resolved, that this meeting express its anxiety that such conditions exist, and request the Government to take action in order that none of our children be unfed, underfed, or ill-fed.

8. Resolved, That the Women's Institutes of Ontario recognize the good work of the Women's College Hospital and Dispensary, 125 Rusholme Road, in caring for sick and suffering women and children, and that we express our appreciation of what is being done in that institution in restoring the health and prolonging the lives of so many, including wives and mothers of our brave soldiers, that we urge upon our members to support this patriotic institution, so unique in character, so far reaching in results, and so worthy of support, feeling proud that we have at last in Canada one hospital where women can be treated by women physicians and surgeons.

9. Resolved, That the accompanying petition and resolutions of the Women's Institute of Northern Ontario be supported and endorsed, and commended to the consideration of the Premier, the Legislative Assembly, and members of the Government of Ontario.

(a) That this Women's Institute of Porquis Junction, put on record the fact that the Premier and Government of Canada are asking us to co-operate in aid of a greater production for the safety of our country in time of war, and that owing to high cost and shortage of material and labour as well as the disadvantages of fencing in unorganized parts of the country, we hereby ask your assistance and consideration for this our plea: That any person or persons allowing their animals to run at large be liable in the Civil Courts for any damages done to crops, whether lawfully fenced or unfenced.

(b) We, the members of the Thunder Bay Women's Institute desire our Provincial Government to take action as speedily as possible to procure institutions for our feeble-minded for Thunder Bay, Kenora, and Rainy River District.

(c) We, the members of Thunder Bay District Women's Institute request the Provincial Government (Department of Education) that entrance pupils from rural schools in Thunder Bay District be examined at some rural central point or points.

10. That we, in this Central Convention assembled, desire to place on record our sense of loss in the death of one of our brightest workers, Miss Maude Hotson, whom to know was to love, and to meet an inspiration.

And that a copy of this be sent to her father, Dr. Hotson, of Parkhill.

11. That the thanks of this Convention be expressed to Sir William Hearst, Premier and Minister of Agriculture for Ontario; the Hon. W. J. Hanna, Food Controller for Canada; Dr. G. C. Creelman, Commissioner of Agriculture for Ontario; Sergeant Turley, Nurse Adams, Mrs. Muldrew of the Food Controller's office, and others who so ably and willingly assisted in making the Convention a success.

12. That the delegates assembled express appreciation of the kindly treatment received from Dr. MacKay and the officials of the Technical School.

13. Resolved, That the sympathies of the delegates be extended to Mrs. Torrington in her sad bereavement through the death of her husband; to Dr. Creelman through the death of his sister, Mrs. J. Jeffries, and to Dr. Hotson through the loss of his daughter by drowning.

THE CHAIRMAN: We have come to the end of the Convention for 1917, and we will sing the National Anthem and then the Benediction. I think I have never been in a Women's Institute Convention where there was just quite the same feeling that there has been this year, and while I feel like praying for the King and all in high authority over us, I feel also like singing praise to Him from Whom all Blessings Flow. I feel that God's hand is in the work we are doing, and we should look to Him for support more than ever before.



REPORT
OF THE
WOMEN'S INSTITUTES
OF THE
Province of Ontario
1917

PART II
List of Meetings and Speakers

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO:
Printed by A. T. WILGRESS, Printer to the King's Most Excellent Majesty
1917

Printed by
WILLIAM BRIGGS
Corner Queen and John Streets
TORONTO

Women's Institutes of Ontario

SUMMER SERIES OF MEETINGS

ANNOUNCEMENT OF SUPERINTENDENT, 1917.

This volume, Part II, Women's Institute report, contains announcement of summer series of Women's Institute meetings, together with list of speakers and their subjects. A report of the Conventions held during 1916, together with statistical statement for the year 1915-16 and some special articles will be found in Part I, a copy of which will be sent to each member of the Institute.

The women of the Institute have devoted most of their time, energy, and resources for nearly three years to patriotic effort, donating most of their cash and goods to the Red Cross Society, but not overlooking local relief, Belgian relief, etc. The regular monthly contributions by the members of the Institute, the holding of concerts, the collection and sale of papers, rubbers, etc., have resulted in bringing into the Institute large sums of money which have been wisely expended. As an instance, one branch gave an order for \$1,100.00 worth of yarn, although their treasury was empty. Within ten days they had the yarn paid for. Individual members of the Institute have knit as many as 200 pairs of socks.

The Institutes Branch has secured from the Red Cross Society copies of "War Work" and the "Red Cross Bulletin," which have been mailed regularly to the presidents and secretaries of all branches throughout the year.

During the past winter over 2,700 women and girls took advantage of courses of Demonstration-Lectures in "Food Values and Cooking," "Home Nursing and First Aid," or "Sewing." Keen interest has been shown in this work, which promises to develop into a very prominent feature of Institute activity. As a result of Red Cross work and the holding of Demonstration-Lecture courses, many girls have been attracted to the Institute, and even in the midst of their war work are carrying on a limited amount of educational and social work of special interest and value to the young women in the rural districts. It is the intention of the Department to encourage girl's work during the coming months.

Various departments of the Government and war time commissions and committees have continued to look upon the Women's Institutes as the best medium through which to reach the women of Ontario in support of patriotic effort.

It is gratifying to the Department to note a gradual improvement in the business methods characterizing the work of the officers, and the Department fully recognizes that the success accompanying the general work of the Institutes is due largely to the hearty, capable co-operation of the officers and members.

The success of the summer series will depend largely upon the plans made and advertising done by each branch concerned, with the co-operation and assistance of the district officers.

ADVICE TO DISTRICT OFFICERS.

The District Officers are held responsible for the following:—

(1) Arrange and pay for transportation of the delegate while attending meetings where branches are established. The Department will bear all expenses, including hotel bills and transportation, at points where branches do not exist for over Sunday—and when going from one riding to another. When two delegates

are sent to a meeting the Department will bear all expenses for one of them. The district Officers can no doubt reduce the transportation charge considerably by co-operating with the branch officers in making and carrying out arrangements.

Send copies of advertising material to the delegate and give information as to how to reach the first place of meeting in the riding and outline the arrangements made for transportation between places in the riding.

Notify the delegate as to when and where she will be met by the district officer or officers.

(2) Advertise all meetings. See pages 49 and 50 of Hand Book for directions. Thorough advertising, not only among the Institute members but all women of the locality, is desired.

Advertise for a definite hour, say 2.30 or 3 p.m.; and, if an evening instead of an afternoon session is desired, 8 p.m., and start the meeting at the time announced.

One session is preferable to two. We strongly advocate an *afternoon meeting only*. Departmental delegates will not be available for Saturday evening meetings, except where special arrangements are made with the Department for the same.

Have a definite understanding with the officers at each point as to method and extent of advertising.

Utilize the local papers in advertising.

See that definite announcements are made in all advertisements as to hall or other place of meeting at each point to be visited.

Make your announcements for each session as full as possible, i.e., give the name of the speaker and the topics to be taken up.

Arrangements should be made with each branch secretary for each member to receive a notice of the meetings, and special invitations to non-members should be either sent direct to the individual or announced in the local press.

When meetings are announced for places at which there is no organization, pay special attention to the matter of advertising. Secure some local persons to arrange for hall, entertainment, etc.

Arrange with the branch officers for a definite programme for each point. Only one speaker will be furnished for the great majority of meetings. It will, therefore, be necessary to furnish some local assistance. This will be insisted on where an evening meeting is held. It would be well for one of the district officers to give a short address bearing upon the work of the district at each place of meeting. A short paper or address from some local person upon a subject of general interest to the members should be arranged for, and one or two selections of music as well.

ADVICE TO BRANCH OFFICERS.

Give your district secretary full particulars regarding arrangements for your local meetings, indicating the addresses, musical selections, or other assistance which will be given the delegate; also let the district secretary know what advertising you are prepared to do locally. See pages 49 and 50 of the Hand Book for advice regarding advertising. Urge your members to give invitations to other women in the district to attend the meetings.

The branches are responsible for the entertainment of the delegate, and it may be that they can render assistance in the *transportation* of delegate also. Notify the district secretary as to what you are prepared to do towards this.

See that the hall in which the meeting is to be held is properly cleaned, lighted and ventilated.

Write direct to delegate at least two weeks before your meeting is to be held, at her home address, or at some point in the series of meetings, notifying her of the topics chosen for your local meeting. *Notify the delegate* as to what provision has been made for her *entertainment*.

Announce only one session, preferably an afternoon meeting. Two sessions will be allowed only upon condition that considerable assistance is given at the evening meeting.

Delegates are not prepared to attend Saturday evening meetings, except when special application is made to the Department for the same and permission given.

While lunches and picnics are an enjoyable feature of the summer meetings, the delegate should be given an opportunity for proper rest and regular meals.

GENERAL NOTES.

Ask questions at the meeting, not afterwards; when all will get the benefit of the answers.

Bring notebook and pencil with you.

If the Institute has been a benefit to you, ask others to join.

Women and girls over fourteen will be made welcome at the afternoon meetings. Both men and women and the young people are invited to the evening sessions.

While the Departmental delegates have an important part to play in making the summer series a success, a great responsibility rests upon the local officers in thoroughly advertising the meetings and in urging the members and their friends to attend. Do not fail to notify the delegates as to the arrangements which have been made for the meeting at each place.

The delegates who will attend the summer series of meetings will meet in conference at Toronto, with a view to receiving instructions and exchanging ideas regarding the work in hand. An exchange of views and experiences on the part of the workers and a general understanding as to the policy of the Department will tend to make the coming series of special interest and value to the members.

GEO. A. PUTNAM,

Superintendent.

SUMMER SERIES OF WOMEN'S INSTITUTE MEETINGS, 1917

In the following list "aft" indicates an afternoon session only—"eve" an evening session only. At other places it is expected that an afternoon session will be held and possibly an evening session. Local announcements will give full particulars as to speakers, subjects, hour of meeting, etc.

For subjects of speakers see pages 19 to 26.

DIVISION 1.—Miss M. V. Powell, Whitby.

1. Stamford, Southend School	Welland	aft.	May 22
2. Fonthill, Dalton's Hall	"	aft.	" 23
3. Bethel, Methodist Church	"	aft.	" 24
4. Crowland, Town Hall	"	aft.	" 25
5. Willoughby	"	aft.	" 26
6. Stevensville, Public Library	"	aft.	" 28
7. Bowen Road	"	aft.	" 29
8. Ridgeway, Library Room	"	aft.	" 30
9. Humberstone, Town Hall	"	aft.	" 31
10. Dunnville, Grace Methodist Church	Monck	aft.	June 1
11. Canboro, Town Hall	"	aft.	" 2
12. Attercliffe Station, Evangelical Church ..	"	aft.	" 4
13. Moulton, Methodist Church	"	aft.	" 5
14. Winger, Disciple Church	"	aft.	" 6
15. Fenwick, Methodist Church	"	aft.	" 7
16. Rosedene, Mrs. C. Will's Home	"	aft.	" 8
17. Smithville, Hall	"	aft.	" 9
18. Fulton and Grassie, Mrs. J. Merritt's Home	"	aft.	" 11
19. Abingdon, Hall	"	aft.	" 12
20. Caistorville, Methodist Church	"	aft.	" 13
21. York, Church	Haldimand	aft.	" 14
22. Canfield, Basement of Church	"	aft.	" 15
23. South Cayuga, Hall	"	aft.	" 16
24. Rainham Centre, Town Hall	"	aft.	" 18
25. Cheapside, Private Residence	"	aft.	" 19
26. Sandusk, Hall	"	aft.	" 20
27. Nanticoke, Private Residence	"	aft.	" 21
28. Varence, Private Residence	"	aft.	" 22
29. Garnet, Private Residence	"	aft.	" 23
30. Springvale, Mrs. C. Gowan's Home	"	aft.	" 25
31. Decewsville, Hall	"	aft.	" 26
32. Grand River, Mrs. N. E. Tapps' Home	"	aft.	" 27
33. Clanbrassil, Church	"	aft.	" 28

DIVISION 2.—Miss D. M. Sutherland, Embro.

1. Niagara-on-the-Lake, Masonic Hall	Lincoln	aft.	May 28
2. Virgil	"	aft.	" 29
3. Queenston, Laura Secord Hall	"	aft.	" 30
4. Grantham, Methodist Church	"	aft.	" 31
5. Louth, Grange Hall	"	aft.	June 1
6. Jordan, Victoria Hall	"	aft.	" 2
7. Beamsville, Town Hall	"	aft.	" 4
8. Grimsby, Council Chamber	"	aft.	" 5
9. Winona, Institute Hall	South Wentworth	aft.	" 6
10. Tapleytown	"	aft.	" 7
11. Mt. Hamilton, Mrs. A. Inch's Home	"	aft.	" 8
12. Bartonville, Mrs. C. Burkholder's Home ..	"	aft.	" 9
13. Hannon, Mrs. H. Glover's Home	"	aft.	" 11
14. Binbrook, Masonic Hall	"	aft.	" 12
15. Blackheath, Mrs. W. Degrow's Home	"	aft.	" 13
16. Glanford, Methodist Church	"	aft.	" 14
17. Carl Luke, Mrs. L. Smith's Home	"	aft.	" 15

18. Langford, Mrs. E. R. Lang's Home	North Brant	aft. June 16
19. Onondaga, Mrs. Chas. Edward's Home	"	aft. " 18
20. Middleport, Mrs. Jas. Douglas' Home	"	aft. " 19
21. Cainsville	"	aft. " 20
22. Echo Place, School	"	aft. " 21
23. Alford and Park Road, Mrs. N. Edmonson's Home.	"	aft. " 22
24. Grandview, School	"	aft. " 23
25. Tutela, Bell Homestead	"	aft. " 25
26. Moyle and Tranquility, School	"	aft. " 26
27. Paris, A.O.F. Hall	"	aft. " 27
28. Glen Morris, Central Hall	"	aft. " 28
29. St. George, Mrs. W. H. Ker's Home	"	aft. " 29

DIVISION 3.—Miss B. Duncan, 5 Ridout Street, Toronto.

1. Caledonia, Mrs. Hind's Home	Haldimand	aft. May 22
2. Hagersville, Hall	"	aft. " 23
3. Jarvis, Methodist S.S. Room	"	aft. " 25
4. Erie, Private Residence	"	aft. " 26
5. Selkirk, Church	"	aft. " 28
6. Fisherville, Mrs. Held's Home	"	aft. " 29
7. Bingham Road, Town Hall	"	aft. " 30
8. Cayuga, Presbyterian Church	"	aft. " 31
9. Tyrrell, Hall	North Norfolk	aft. June 1
10. Kelvin, Private Residence	"	aft. " 4
11. Boston, Foresters' Hall	"	aft. " 5
12. Bealton, Mrs. Robinson's Home	"	aft. " 6
13. Hartford, Hall	"	eve. " 7
14. Townsend (Villa Nova), Foresters' Hall	"	aft. " 8
15. Waterford, Town Hall	"	aft. " 9
16. Windham Centre	"	aft. " 11
17. St. Williams	South Norfolk	aft. " 12
18. Forestville, Town Hall	"	aft. " 13
19. Walsh	"	aft. " 14
20. Langton	"	aft. " 15
21. Carholme, Silver Hill Hall	"	aft. " 16
22. Lynedoch, Church	"	aft. " 18
23. Delhi, Morgan's Hall	North Norfolk	aft. " 19
24. Simcoe, Baptist S.S. Room	"	aft. " 20
25. Goshen	"	aft. " 21
26. Tillsonburg	South Oxford	aft. " 22
27. Springford, Methodist Church	"	aft. " 25
28. Norwich, Library Board Room	"	aft. " 26
29. Beaconsfield, Mrs. A. F. Walker's Home	"	aft. " 27
30. Burgessville, Mrs. Chas. Burgess' Home	"	aft. " 28

DIVISION 4.—Dr. Annabel McEwen, 37 Teresa St., London.

1. Straffordville, Church	East Elgin	aft. May 22
2. Bayham, Methodist Church	"	aft. " 23
3. Luton, Church	"	aft. " 24
4. Aylmer, Town Hall	"	aft. " 25
5. Springfield, Muller's Hall	"	aft. " 26
6. Lyons, Hall	"	aft. " 28
7. Kingsmill and Mapleton, Private Residence	"	aft. " 29
8. Shedden, Town Hall	West Elgin	aft. " 30
9. Fingal, Town Hall	"	aft. " 31
10. Iona, Church	"	aft. June 1
11. Wallacetown, Town Hall	"	aft. " 2
12. West Lorne, Opera House	"	aft. " 4
13. Rodney, Town Hall	"	aft. " 5
14. Highgate, Town Hall	East Kent	aft. " 6
15. Duart, Town Hall	"	aft. " 7
16. Palmyra, Methodist Church	"	aft. " 8
17. Morpeth, Hall	"	aft. " 9
18. Botany, Presbyterian Church	"	aft. " 11
19. Thamesville, I. O. O. F. Hall	"	aft. " 12
20. Clachan, Town Hall	West Elgin	aft. " 13

21. Bothwell, Town Hall	East Kent	aft. June 14
22. Croton, Mrs. E. Young's Home	"	aft. " 15
23. Wabash, Latter Day Saints' Church	"	aft. " 16
24. Kent Bridge, Langford's Hall	"	aft. " 18
25. Comber, Town Hall	North Essex	aft. " 19
26. Maidstone, School House, No. II.	"	aft. " 20
27. Essex, Town Hall	South Essex	aft. " 21
28. Cottam, Methodist Church	"	aft. " 22
29. Oldcastle, Town Hall	North Essex	aft. " 23
30. Amherstburg, Public Library	South Essex	aft. " 25
31. Harrow, Methodist Church	"	aft. " 26
32. Kingsville, Town Hall	"	aft. " 27
33. Leamington, Foresters' Hall	"	aft. " 28

DIVISION 5.—Miss M. Yates, Port Credit.

1. Harwich Centre, Church	West Kent	aft. May 24
2. Guilds, Church	"	aft. " 25
3. Rondeau, School	"	eve. " 26
4. Cedar Springs, Baptist Church	"	aft. " 28
5. South Raleigh, Presbyterian Church	"	aft. " 29
6. Port Alma, Talbot St. Church	"	aft. " 30
7. Wheatley	"	aft. " 31
8. Tilbury, Presbyterian Church	"	aft. June 1
9. Quinn, Union Hall	"	aft. " 2
10. Valetta, Presbyterian Church	"	aft. " 4
11. Thames River, W. I. Rest Room, Chatham.	"	aft. " 5
12. Irwin	"	aft. " 6
13. Eberts, Township Hall	"	aft. " 7
14. Dover, Mrs. H. Montgomery's Home	"	aft. " 8
15. Wallaceburg, School	"	aft. " 9
16. Becher, Methodist Church	West Lambton	aft. " 11
17. Sombra	"	aft. " 12
18. Wilkesport	"	aft. " 13
19. Corunna, Miss C. Hackney's Home	"	aft. " 14
20. Colinville	"	aft. " 15
21. Maple Leaf, Private House	"	aft. " 16
22. Blackwell, Methodist Church	"	aft. " 18
23. Mandaumin	"	aft. " 19
24. Bentpath, Mrs. J. M. Fry's Home	"	aft. " 20
25. Rutherford, Mrs. J. Thomson's Home	"	aft. " 21
26. Oakdale, Presbyterian Church	"	aft. " 22
27. Florence, Church	East Lambton	eve. " 23
28. Shetland, Church	"	aft. " 25
29. Aughrim, Private Residence	"	aft. " 26
30. Inwood, Red Cross Rooms	"	aft. " 27
31. Brooke, Private Residence	"	aft. " 28
32. Warwick Hall	"	aft. " 29

DIVISION 6.—Miss Annie Scott, Nottawa.

1. Wellburn	East Middlesex	aft. May 30
2. Thorndale, Private Residence	"	aft. " 31
3. Salem, Church	"	aft. June 1
4. Birr, Private Residence	"	aft. " 4
5. Hyde Park	"	aft. " 5
6. Komoka, Mrs. Lofthouse's Home	North Middlesex	aft. " 6
7. Lobo, Hall	"	aft. " 7
8. Coldstream, Hall	"	aft. " 8
9. Beechwood, Foresters' Hall	"	aft. " 9
10. Keyser, Foresters' Hall	"	aft. " 11
11. Sylvan, Mrs. D. Paton's Home	"	aft. " 12
12. Park Hill, Rest Room	"	aft. " 13
13. Ailsa Craig, Town Hall	"	aft. " 14
14. Clandeboye, M. E. Church	"	aft. " 15
15. Lucan, Oddfellows' Hall	"	aft. " 16
16. Granton, Church	"	aft. " 18
17. Zurich, Town Hall	South Huron	aft. " 19
18. Blake, Private House	"	aft. " 20
19. Exeter, Library	"	aft. " 21

20. Kerrwood, Mrs. A. Wood's Home	West Middlesex	aft. June 22	22
21. Napier, Town Hall	"	aft. " 23	23
22. Glen Oak, Mrs. S. B. Fisher's Home	"	aft. " 25	25
23. Strathroy, St. John's Parish Room	"	aft. " 26	26
24. Delaware, Town Hall	"	aft. " 27	27
25. Mt. Brydges, Town Hall	"	aft. " 28	28
26. Middlemiss, Town Hall	"	aft. " 29	29
27. Appin, Mrs. J. Jones' Home	"	aft. " 30	30
28. Wardsville, Town Hall	"	aft. July 3	3
29. Newbury, Town Hall	"	aft. " 4	4

DIVISION 7.—Miss G. Gray, 650 Bathurst St., Toronto, May 28 to June 14.
Mrs. J. J. Lowe, Hespeler, June 15 to 25.

1. Palermo, Mrs. P. Campbell's Home	Halton	aft. May 28	28
2. Burlington, Public Library	"	aft. " 29	29
3. Nelson, Township Hall	"	aft. " 30	30
4. Esquesing, Township Hall	"	aft. " 31	31
5. Arkell, Methodist Church	South Wellington	aft. June 1	1
6. Paisley Block, Private Residence	"	aft. " 4	4
7. West End, Mrs. Jas. McCrae's Home	"	aft. " 5	5
8. Riverside, Private Residence	"	aft. " 6	6
9. Rockwood	"	aft. " 7	7
10. Bethany, Sunday-school Room	Centre Wellington	aft. " 8	8
11. Speedside, Sunday-school Room	"	aft. " 9	9
12. Ennotville, Library	"	eve. " 11	11
13. Cumnock, Presbyterian Church	"	aft. " 12	12
14. Belwood, Town Hall	"	aft. " 13	13
15. Marsville, V. Armstrong's Store	"	aft. " 14	14
16. Hillsburg	"	aft. " 15	15
17. Coningsby, Mrs. Alex. Orr's Home	"	aft. " 18	18
18. Erin, Mrs. A. Gale's Home	"	aft. " 19	19
19. Damascus	East Wellington	aft. " 20	20
20. Kenilworth	"	aft. " 21	21
21. Mount Forest, Library Hall	"	aft. " 22	22
22. Conn, Private Residence	"	aft. " 23	23
23. Cedarville	"	aft. " 25	25

DIVISION 8.—Dr. Margaret Patterson, 97 Walmer Road, Toronto.

1. Islington, Jubilee Hall	West York	eve. May 22	22
2. Lambton Mills, Methodist Church	"	eve. " 23	23
3. Richview, Mrs. M. Peacock's Home	"	aft. " 24	24
4. Thistleton, Mrs. A. Shaw's Home	"	aft. " 25	25
5. Edgeley, Mrs. R. Sawdon's Home	"	aft. " 28	28
6. Vellore, Township Hall	"	aft. " 29	29
7. Maple, Methodist Church	"	aft. " 30	30
8. Kleinburg & Nashville, Private Residence	"	aft. " 31	31
9. Stoney Creek, Parish Hall	South Wentworth	aft. June 1	1
10. Upper Hamilton, Barton Township Hall	"	aft. " 2	2
11. Ancaster, Mrs. R. S. Stevenson's Hall	"	aft. " 4	4
12. Dundas, High School	North Wentworth	aft. " 5	5
13. Waterdown, McGregor's Hall	"	aft. " 6	6
14. Orkney, I.O.F. Hall	"	aft. " 7	7
15. Sheffield, Oddfellows' Hall	"	aft. " 8	8
16. Kirkwall	"	aft. " 11	11
17. Freelon, Mrs. (Dr.) McQueen's Home	"	aft. " 12	12
18. Lorne Park, Mrs. G. A. Jarvis' Home	Peel	aft. " 13	13
19. Erindale, Hall	"	aft. " 14	14
20. Streetsville, I.O.F. Hall	"	aft. " 15	15
21. Meadowvale	"	aft. " 18	18
22. Malton	"	aft. " 19	19
23. Snelgrove, Mrs. Jno. Watson's Home	"	aft. " 20	20
24. Cheltenham, Mrs. L. A. Haines' Home	"	aft. " 21	21
25. Sandhill, Hall	"	aft. " 22	22
26. Inglewood	"	aft. " 25	25
27. Belfountain, Town Hall	"	aft. " 26	26
28. Alton	"	aft. " 27	27
29. Caledon, Town Hall	"	aft. " 28	28
30. Elia, Private Residence	West York	aft. " 29	29

DIVISION 9—Dr. Annie Backus, Aylmer.

1. Scotland, Mrs. F. Smith's Home.....	South Brant	aft. May 31	
2. Oakland	"	aft. June 1	
3. Mount Pleasant	"	aft. "	2
4. Oak Hill, School House	"	eve. "	4
5. Burford, Mrs. E. E. Brethour's Home.....	"	aft. "	5
6. Cathcart, Mrs. Kinsella's Home	"	aft. "	6
7. Bright, Methodist Church	North Oxford	aft. "	7
8. Drumbo, Town Hall	"	aft. "	8
9. Braemar, Hall	"	aft. "	9
10. Embro, Town Hall	"	aft. "	11
11. Lakeside	"	aft. "	12
12. Kintore, Hall	"	aft. "	13
13. Galt, Victoria Park	South Waterloo	aft. "	14
14. Preston, Town Hall	"	aft. "	15
15. Branchton	"	aft. "	18
16. Haysville, Hall	"	aft. "	20
17. New Dundee	"	aft. "	21
18. Wellesley, Town Hall	North Waterloo	aft. "	22
19. Linwood, Schnurr's Hall	"	aft. "	23
20. Hawkesville, Ballard's Hall	"	aft. "	25
21. Floradale, Mrs. A. Snider's Home	"	aft. "	26
22. West Montrose, W. I. Hall	"	aft. "	27
23. Winterbourne	"	aft. "	28

DIVISION 10—Dr. Susan L. Fotheringham, 73 Walmsley Boulevard, Toronto.

1. Tavistock, Hall	South Perth	aft. May 29	
2. Sebringville, Private Residence	"	aft. "	30
3. Fullarton, Private Residence	"	aft. "	31
4. Mitchell, Mrs. Wm. Hodge's Home.....	"	aft. June 1	
5. Kirkton, Private Residence	"	aft. "	2
6. St. Paul's, Town Hall	"	aft. "	4
7. Shakespeare, Temperance Hall	North Perth	aft. "	5
8. Hampstead, Private Residence	"	aft. "	6
9. Milverton, Library Hall	"	aft. "	7
10. Millbank, Private Residence	"	aft. "	8
11. Listowel East, Miss M. Cleland's Home...	"	aft. "	11
12. Listowel West, Mrs. G. Nicholl's Home...	"	aft. "	12
13. Moorefield, Township Hall	West Wellington	aft. "	13
14. Drayton, Council Chamber	"	aft. "	14
15. Glenallan, Private Residence	"	aft. "	15
16. Ayton, School House	South Grey	aft. "	19
17. Hanover, Town Hall	"	aft. "	20
18. Allan Park	"	aft. "	21
19. Lamlash	"	aft. "	22
20. Elmwood, Mrs. N. Wildfang's Home.....	"	aft. "	23
21. Louise	"	aft. "	25
22. Dornoch, Hall	"	aft. "	26
23. Durham, Library	"	aft. "	27
24. Zion, Mrs. W. J. Cook's Home.....	"	aft. "	28
25. Dromore, Russel Hall	"	aft. "	29
26. Holstein, Agricultural Hall	"	aft. "	30

DIVISION 11—Miss E. M. Collins, Ancaster.

1. Tara, Council Chamber	West Bruce	aft. May 29	
2. Arkwright, Church	"	aft. "	30
3. Port Elgin, Public Library	"	aft. "	31
4. Tiverton, Town Hall	"	aft. June 1	
5. Kintail	West Huron	aft. "	4
6. St. Helen's, Public Hall	"	aft. "	5
7. Dungannon, Presbyterian Church	"	aft. "	6
8. St. Augustine, Mrs. W. McAllister's Home.	"	aft. "	7
9. Wingham, Council Chamber	"	aft. "	8
10. Blyth, Oddfellows' Hall	"	aft. "	12

11. Belgrave, Mrs. N. Higgins' Home	East Huron	aft. June 13
12. Brussels, Carnegie Library	" "	aft. " 14
13. Walton, Workman's Hall	" "	aft. " 15
14. Ethel, Dilworth's Hall	" "	aft. " 16
15. Jamestown	" "	aft. " 18
16. Molesworth, Lechaven House	" "	aft. " 19
17. Fordwich	" "	aft. " 20
18. Kincardine	Centre Bruce	aft. " 21
19. Belmore	South Bruce	aft. " 22
20. Teeswater	" "	aft. " 23
21. Holyrood	" "	aft. " 24
22. Lucknow, Town Hall	" "	aft. " 25
23. Walkerton, Private Residence	" "	aft. " 27
24. Narva	Centre Bruce	aft. " 28
25. Paisley, Putnam's Hall	" "	aft. " 29
26. Williscroft, Baptist Church	" "	aft. " 30

DIVISION 12—Mrs G. H. Greer, 870 Wellington Street, London.

1. Meaford, Town Hall	North Grey	aft. May 29
2. Clarksburg, Presbyterian Church	Centre Grey	aft. " 30
3. Heathcote, Town Hall	" "	aft. " 31
4. Rocklyn, Agricultural Hall	" "	aft. June 1
5. New England, Methodist Church	" "	aft. " 2
6. Kimberley, Methodist Church	" "	aft. " 4
7. Eugenia, Church	" "	aft. and eve. " 5
8. Vandeleur, Foresters' Hall	" "	aft. and eve. " 6
9. Flesherton, High School	" "	aft. " 7
10. Badjeros, School House	" "	aft. and eve. " 8
11. Dundalk, Town Hall	" "	aft. " 9
12. Hopeville, Mrs. A. H. Burnett's Home	" "	aft. and eve. " 11
13. Priceville, Watson's Hall	" "	aft. " 12
14. Markdale, Office, Dept. of Agriculture	" "	aft. " 13
15. Williamsford, Maccabees' Hall	" "	aft. " 14
16. Strathaven, Foresters' Hall	" "	aft. " 15
17. Walter's Falls, Hall	" "	aft. " 16
18. Bognor, Hall	North Grey	aft. " 18
19. Salem, Private Residence	" "	aft. " 19
20. Kilsyth, Township Hall	" "	aft. " 20
21. Chatsworth, Orange Hall	" "	aft. " 21
22. Owen Sound, 992 4th Avenue West	" "	aft. " 22
23. Annan, Hall	" "	eve. " 23
24. Kemble, Public Library	" "	aft. " 25
25. Clavering, School House, S.S. No. 3	" "	aft. " 26
26. Shallow Lake, Methodist Church	" "	aft. " 27
27. Parkhead	North Bruce	aft. " 28
28. Hepworth	" "	aft. " 29
29. Wlarton	" "	aft. " 30
30. Mar	" "	aft. July 3
31. Oliphant	" "	aft. " 4
32. Colpoys Bay	" "	aft. " 5
33. Hope Bay	" "	aft. " 6
34. Lion's Head	" "	aft. " 7
35. Spry	" "	aft. " 9

DIVISION 13—Mrs. M. L. Woelard, 426 Bloor Street West, Toronto.

1. Colbeck, Hall	Dufferin	aft. May 22
2. Grand Valley	"	aft. " 23
3. Orangeville	"	aft. " 25
4. Mono College, Hall	"	aft. " 26
5. Blount, Mitchell's Church	"	aft. " 28
6. Mono Centre	"	aft. " 29
7. Elba	"	aft. " 30
8. Camilla	"	aft. " 31
9. Whittington, Methodist Church	"	aft. June 1
10. Laurel, Church	"	aft. " 4

11. Shelburne, Town Hall (District Annual) ..	Dufferin	..	aft. June	5
12. Corbetton, Presbyterian Church	"	..	aft. "	6
13. Hornings Mills, Institute Hall	"	..	aft. "	7
14. Honeywood Church	"	..	aft. "	8
15. Ruskview, Orange Hall	"	..	aft. "	9
16. Whitfield, Orange Hall	"	..	aft. "	11
17. Violet Hall, Orange Hall	"	..	aft. "	12
18. Alliston, Masonic Hall	W. Simcoe	..	aft. "	13
19. Everett, Presbyterian Church	"	..	aft. "	14
20. Avening, School House	"	..	eve. "	15
21. Dunedin, Presbyterian Church	"	..	aft. "	18
22. Maple Valley, W. I. Hall	"	..	aft. "	19
23. Singhampton, Orange Hall	"	..	aft. "	20
24. Duntroon, Mrs. Carmichael's Home	"	..	aft. "	21
25. Batteau, Miss Jackson's Home	"	..	aft. "	22
26. Stayner, Miss Reazin's Home	"	..	aft. "	23
27. Sunnidale Corners	"	..	aft. "	25
28. New Lowell, Town Hall	"	..	aft. "	26
29. Newton Robinson	S. Simcoe	..	aft. "	27
30. Cookstown, Town Hall	"	..	aft. "	28
31. Thornton, Temperance Hall	"	..	aft. "	29
32. Ivy, Orange Hall	"	..	aft. "	30

DIVISION 14—Mrs. J. J. Lowe, Hespeler, May 28 to June 1.

Miss Janet Preston, Napanee, June 2 to 30.

1. Coulson's Hill	South Simcoe	..	aft. May	28
2. Auld Kirk Scotch Line	"	..	aft. "	29
3. Churchill	"	..	aft. "	30
4. Stroud, Church	"	..	aft. "	31
5. Dalston, Methodist Church	Centre Simcoe	..	aft. June	1
6. Edgar, W. Institute Hall	East Simcoe	..	aft. "	2
7. Mitchell Square	"	..	aft. "	4
8. Guthrie, Church	"	..	aft. "	5
9. Oro Station, Bell's Hall	"	..	aft. "	6
10. Orillia, Methodist Church	"	..	"	7
11. Jarrett	"	..	aft. "	8
12. Uhthoff	"	..	aft. "	9
13. Price's Corners, St. Luke's Hall	"	..	aft. "	11
14. Rama	"	..	eve. "	11
15. Washago, Temperance Hall	"	..	aft. "	12
16. Ardrea, Mrs. A. T. Read's Home	"	..	aft. "	13
17. Eady, Wesley Church	"	..	aft. "	14
18. North River, Methodist Church	"	..	aft. "	15
19. Waubaushene, I.O.O.F. Hall	"	..	aft. "	16
20. Victoria Harbour	"	..	eve. "	18
21. Penetanguishene, Public Library	Centre Simcoe	..	aft. "	19
22. Wyebridge, Lummis' Hall	"	..	aft. "	20
23. Birch, Mrs. Geo. Adam's Home	"	..	aft. "	21
24. Wyevale, Presbyterian Church	"	..	aft. "	22
25. Allenwood, Methodist Church	"	..	eve. "	23
26. Crossland, Knox Hall	"	..	aft. "	25
27. Elmvale, Town Hall	"	..	aft. "	26
28. Silver Maple	"	..	aft. "	27
29. New Flos, Private Residence	"	..	aft. "	28
30. Edenvale, Hall	"	..	aft. "	29
31. Minesing, Workman's Hall	"	..	eve. "	30
32. Shanty Bay, W. I. Park	"	..	aft. July	12

DIVISION 15—Mrs. M. Boulton, Wiarton.

1. Claremont	South Ontario	..	aft. May	22
2. Kinsale, School House	"	..	aft. "	23
3. Whitevale	"	..	aft. "	25
4. Pickering, Methodist Church	"	..	aft. "	28
5. Whitby, Agricultural Office	"	..	aft. "	29
6. Brooklin	"	..	aft. "	30
7. Columbus	"	..	aft. "	31

8. Shirley	South Ontario	aft. June	1
9. Utica, Private Residence	"	aft. "	2
10. Greenbank, Private Residence	"	aft. "	4
11. Stouffville, Liberal Club Hall	East York	aft. "	5
12. Markham, Town Hall	"	aft. "	6
13. Unionville	"	aft. "	7
14. Victoria Square, Mrs. R. F. Klink's Home	"	aft. "	8
15. Agincourt, Heather Hall	"	aft. "	9
16. West Hill, Mrs. A. Little's Home	"	aft. "	11
17. Lakeview	"	aft. "	13
18. Scarboro Junction	"	aft. "	14
19. East Toronto, Elk Room, 166 Main Street	"	aft. "	15
20. Richmond Hill	"	aft. "	18
21. Vandonf, Mechanics' Hall	North York	aft. "	19
22. Pine Orchard, Union Meeting House	"	aft. "	20
23. Mt. Albert, Presbyterian Church	"	aft. "	21
24. Queensville, Methodist Church	"	aft. "	22
25. Newmarket, Friends' Meeting House	"	aft. "	23
26. Aurora, Mechanics' Hall	"	aft. "	25
27. Kettleby, Mrs. Elliott's Home	"	aft. "	26
28. Schomberg, Methodist Church	"	aft. "	27
29. King East, Mrs. Jas. Stewart's Home	"	aft. "	28
30. Laskay, Hall	"	aft. "	29
31. Nobleton, Methodist Church	"	aft. "	30

DIVISION 16—Mrs. K. B. Coutts, Thamesville.

1. Smithfield, Church	East Northumberland	aft. May	25
2. Brighton, Union Hall	"	aft. "	26
3. Stockdale, Private Residence	"	aft. "	28
4. Wooler, Church	"	aft. "	29
5. Codrington, Orange Hall	"	aft. "	30
6. Hilton, Town Hall	"	aft. "	31
7. Dundonald, Mrs. J. P. Dunnett's Home	"	aft. June	1
8. Castleton, Town Hall	"	aft. "	2
9. Seymour West, Mrs. C. Macoun's Home	"	aft. "	4
10. Menie, Lamb's Hall	"	aft. "	5
11. North Monaghan, Hall	East Durham	aft. "	6
12. Fairmount	"	eve. "	6
13. Mount Pleasant, Temperance Hall	"	aft. "	7
14. Pontypool, Chosen Friends' Hall	"	aft. "	8
15. Manvers, Orange Hall	"	aft. "	9
16. Cavan, Methodist Church	"	aft. "	11
17. Millbrook, Town Hall	"	eve. "	12
18. Bailieboro, Anglican S.S. Room	"	aft. "	13
19. Garden Hill, Institute Hall	"	aft. "	14
20. Elizabthville	"	eve. "	14
21. Charlecote, Mrs. W. G. Welch's Home	"	aft. "	15
22. Cobourg, Foresters' Hall	West Northumberland	aft. "	18
23. Elmview, Miss Holdworth's Home	"	aft. "	19
24. Coldsprings, Orange Hall	"	aft. "	20
25. Fenella, Hall	"	aft. "	21
26. Alderville	"	aft. "	22
27. Roseneath, Town Hall	"	aft. "	25
28. Centreton	"	aft. "	26
29. Baltimore, Chapman's Hall	"	aft. "	27
30. Grafton	"	aft. "	28
31. Wicklow	"	aft. "	29
32. Haydon	West Durham	aft. July	4
33. Newcastle	"	aft. "	5

DIVISION 17.—Dr. Caroline Brown, 383 Ossington Avenue, Toronto.

1. Lorneville	West Victoria	aft. May	28
2. Woodville, Town Hall	"	eve. "	29
3. Linden Valley, Grange Hall	"	aft. "	30
4. Lindsay, Council Chamber	"	aft. "	31

5. Oakwood, Private Residence	West Victoria	aft. June 1	1
6. Valentia, Methodist Church	" "	aft. " 4	4
7. Sonya	" "	aft. " 5	5
8. Manilla, Methodist Church	" "	aft. " 6	6
9. Janetville, Private Residence	" "	aft. " 7	7
10. Nestleton, Church	West Durham	aft. " 8	8
11. Blackstock, Town Hall	" "	aft. " 9	9
12. Tyrone, School Room	" "	aft. " 11	11
13. Solina, Mrs. Taylor's Home	" "	aft. " 12	12
14. Hampton, Hall	" "	eve. " 13	13
15. Bowmanville, Private Residence	" "	aft. " 14	14
16. Orono, Society Hall	" "	aft. " 15	15
17. Starkville, Private Residence	" "	aft. " 16	16
18. Newtonville, Methodist Church	" "	aft. " 18	18
19. Reaboro, Private Residence	West Victoria	aft. " 19	19
20. Omeme, Private Residence	East "	aft. " 20	20
21. Cambray	West "	aft. " 21	21
22. Cameron, Orange Hall	East "	aft. and eve. " 22	22
23. Powle's Corners, Private Residence	" "	aft. " 25	25
24. Islay, Mrs. J. Cowieson's Home	West "	aft. and eve. " 26	26
25. Coboconk, Presbyterian Church	East "	aft. " 27	27
26. Bobcaygeon, M. E. Church	" "	aft. " 28	28
27. Fenelon Falls, Dickson's Hall	" "	aft. " 29	29
28. Burnt River, Orange Hall	" "	aft. " 30	30
29. Kinmount, The Grove	" "	aft. July 3	3
30. Irondale, School House	Haliburton	aft. " 4	4
31. Minden, Town Hall	" "	aft. " 5	5
32. Haliburton, Town Hall	" "	aft. " 6	6

DIVISION 18.—Mrs. F. W. Watts, 51 Chicora Ave., Toronto, May 29 to June 1.
Miss G. Conover, Brampton, June 2 to June 30.

1. Thomasburg, Mrs. J. Jones' Home	East Hastings	aft. May 29	29
2. Bethany	" "	aft. " 30	30
3. Melrose	" "	aft. " 31	31
4. Read	" "	aft. June 1	1
5. Marysville, Mrs. P. McAlpine's Home	" "	aft. " 2	2
6. Shannonville	" "	aft. " 4	4
7. West Belleville, Queen Mary School	" "	eve. " 5	5
8. Rednersville, Hall	Prince Edward	aft. " 6	6
9. Mountain View, Church	" "	aft. " 7	7
10. Big Island, Church	" "	aft. " 8	8
11. Gilberts Mills, Doxsee's Church	" "	aft. " 9	9
12. Wallbridge, Methodist Church	West Hastings	aft. " 11	11
13. Chatterton, Marsh Hill Church	" "	eve. " 12	12
14. Queen Alexandria, Aikens Church	" "	aft. " 13	13
15. River Valley, School House	" "	eve. " 14	14
16. Stirling, Agricultural Office	North Hastings	aft. " 15	15
17. Minto, Club Rooms	" "	aft. " 18	18
18. Springbrook, Foresters Hall	" "	aft. " 19	19
19. Wellman's Corners, Orange Hall	" "	aft. " 20	20
20. Marmora, Town Hall	" "	aft. " 21	21
21. Ivanhoe	" "	aft. " 22	22
22. Moira	" "	aft. " 23	23
23. Madoc, Armouries	" "	aft. " 25	25
24. Detlor	" "	aft. " 26	26
25. Fort Stewart	" "	aft. " 27	27
26. Bancroft	" "	aft. " 28	28
27. Maynooth	" "	eve. " 29	29
28. Clydesdale, School House	North Peterborough	aft. " 30	30

DIVISION 19.—Mrs. Laura Rose Stephen, Huntingdon, Que.

1. Waupoos, Town Hall	Prince Edward	aft. May 23	23
2. Milford, Town Hall	" "	aft. " 24	24
3. Cherry Valley, Town Hall	" "	aft. " 25	25
4. East & West Lake, Private Residence	" "	aft. " 26	26
5. Wellington " Alexandria "	" "	aft. " 28	28
6. Hillier, Town Hall	" "	aft. " 29	29

7. Consecon, Hall	Prince Edward	aft. May 30
8. Maple Leaf, Lutheran Church	Lennox	aft. " 31
9. Enterprise, Keech's Hall	Addington	aft. June 1
10. Adolphustown, Town Hall	Lennox	aft. " 2
11. Conway, Church	"	aft. " 4
12. Stella, Town Hall	Amherst Island	aft. " 5
13. Collin's Bay, Mrs. T. D. Faurfield's Home	Lennox	aft. " 6
14. Westbrook, Hall	Frontenac	aft. " 7
15. Inverary, Agricultural Hall	"	aft. " 8
16. Seeley's Bay, Masonic Hall	South Leeds	aft. " 9
17. Lansdowne, Town Hall	"	aft. " 11
18. Lyn, A.O.U.W. Hall	Brockville	aft. " 12
19. Athens, Institute Rooms, Town Hall	"	aft. " 13
20. Delta, Town Hall	South Leeds	aft. " 14
21. Elgin, Town Hall	"	aft. " 15
22. Westport, Wesley Hall	"	aft. " 16
23. Newboro, Victoria Hall	"	aft. " 18
24. Easton's Corners, Town Hall	N. Leeds & Grenville	aft. " 19
25. Merrickville, Miskelly's Hall	"	aft. " 20
26. Burritt's Rapids, Victoria Hall	"	aft. " 21
27. Kemptville, Red Cross Rooms	"	aft. " 22
28. Oxford Mills, Town Hall	"	aft. " 23
29. Bishop's Mills, Temperance Hall	"	aft. " 25
30. Spencerville, Town Hall	South Grenville	aft. " 26
31. Algonquin, Mr. Kirk's Hall	"	aft. " 27
32. Maynard	"	aft. " 28
33. Crosby	South Leeds	aft. " 29
34. Portland	"	aft. " 30

DIVISION 20.—Miss S. Campbell, 112 Oakwood Avenue, Toronto.

1. Perth, Library Hall	South Lanark	aft. May 29
2. McDonald's Corners, S. S. Room	"	aft. " 30
3. Elphin, Sunday School Room	"	aft. " 31
4. Lavant Station, School House	"	aft. June 1
5. Poland, Sunday School Room	"	aft. " 4
6. Hopetown, Public Hall	North Lanark	aft. " 5
7. Middleville, Temperance Hall	"	aft. " 6
8. Lanark	South Lanark	aft. " 7
9. Drummond Centre, Orange Hall	"	aft. " 8
10. Innisville, Orange Hall	"	aft. " 9
11. Carleton Place, Council Chamber	North Lanark	aft. " 11
12. Clayton, Hall	"	aft. " 12
13. Pakenham, Agricultural Hall	"	aft. " 13
14. Pinegrove, School House	South Renfrew	aft. " 14
15. White Lake, Hall	"	aft. " 15
16. Glasgow Station, Hall	"	aft. " 16
17. Burnstown, Temperance Hall	"	aft. " 18
18. Goshen, Hall	"	aft. " 19
19. North Horton	"	aft. " 20
20. South Horton, Private Residence	"	aft. " 21
21. Bonnechere Valley, Private Residence	"	aft. " 22
22. Castleford	"	aft. " 23
23. Bromley	"	aft. " 25
24. Foresters' Falls	North Renfrew	aft. " 26
25. Lakeview	"	aft. " 27
26. Beachburg, Public Hall	"	aft. " 28
27. Westmeath, Public Hall	"	aft. " 29
28. Norwood, Institute Hall	East Peterboro	aft. " 30
29. Warsaw, Town Hall	"	aft. July 3
30. Mount Julian, Mrs. H. Bronson's Home	North Peterboro	aft. " 4

DIVISION 21.—Miss H. E. Graydon, Streetsville.

1. Sunderland, Council Chamber	North Ontario	aft. May 24
2. Gamebridge, S.O.S. Hall	"	aft. " 25
3. Brechin	"	aft. " 26
4. Altona	"	aft. " 28

5. Iroquois	Dundas	aft.	May 30
6. Cornwall Centre	Stormont	aft.	" 31
7. Picnic Grove, Private House	Glengarry	aft.	June 1
8. Williamstown, St. Andrew's Hall	"	aft.	" 4
9. Glen Brook, School House	"	aft.	" 5
10. Martintown, St. Andrew's Hall	"	aft.	" 6
11. Apple Hall, Temperance Hall	"	aft.	" 7
12. Alexandria, Fire Hall	"	aft. and eve.	" 8
13. Maxville, Institute Hall	"	aft. and eve.	" 9
14. McCrimmon, Hall	"	aft.	" 11
15. Moose Creek	Stormont	aft.	" 12
16. Berwick	"	aft.	" 13
17. Finch	"	aft.	" 14
18. Chesterville	Dundas	aft.	" 18
19. Kars, A.O.U.W. Hall	Carleton	aft.	" 19
20. Manotick, Harmony Hall	"	aft.	" 20
21. Bowesville	"	eve.	" 21
22. Stittsville, Mrs. T. W. Boyes' Home	"	eve.	" 22
23. Carp, Town Hall	"	eve.	" 23
24. Antrim, Town Hall	"	eve.	" 25
25. Galetta, Russell's Hall	"	aft.	" 26
26. Kilmaurs	"	aft.	" 27
27. Zealand	C. Frontenac	aft.	" 29
28. Mountain Grove, Methodist Church	Frontenac	aft. and eve.	" 30
29. Godfrey, Presbyterian Church	C. Frontenac	aft.	July 3

DIVISION 22.—Dr. Letitia Sirrs, R. R. No. 1, Campbellville.

1. Gravenhurst, Institute Hall	South Muskoka	eve.	May 29
2. Macaulay South, Mrs. Barron's Home	"	aft.	" 30
3. Bracebridge	"	eve.	" 31
4. Muskoka Falls	"	aft.	June 1
5. Ziska, Monck Tp., Town Hall	"	eve.	" 4
6. Bardsville	"	"	" 5
7. Ufford	Centre Muskoka	"	" 6
8. Raymond	"	"	" 7
9. Port Stanley	"	"	" 8
10. Allansville	"	"	" 9
11. Silverdale	North Muskoka	"	" 11
12. Aspdin	"	"	" 12
13. Ashworth, Stisted Town Hall	"	"	" 13
14. Ravenscliffe	"	"	" 14
15. North Huntsville, Mrs. T. Hiller's Home	"	"	" 15
16. Brunel	"	"	" 18
17. The Locks, Church	"	"	" 19
18. Dwight	"	"	" 20
19. Fox Point	"	"	" 21
20. Dorset	"	"	" 22
21. Baysville, Town Hall	South Muskoka	aft.	" 23
22. Port Carling, Hall	"	aft. and eve.	" 25
23. Bala, Hall	"	eve.	" 26

DIVISION 23.—Capt. (Mrs.) H. W. Parsons, Northcote Apartments, Toronto.

1. Emsdale	South Parry Sound	May 29
2. Burk's Falls	"	" 30
3. Doe Lake	"	" 31
4. Midlothian	"	June 1
5. Magnetawan	"	" 2
6. Mecunoma	"	" 4
7. Sundridge	"	" 5
8. South River	"	" 6
9. New Liskeard	Temiskaming	" 8
10. Rockley	"	" 9
11. Hillview	"	" 11
12. Chester's Corners	"	" 12
13. Hanbury	"	" 13
14. Milberta	"	" 14

15. Uno Park	Temiskaming	June 15
16. Thornloe	"	" 16
17. Englehart	"	" 18
18. Whitewood Grove	"	" 19
19. Earleton	"	" 20
20. Elk Lake	"	" 21
21. Sunnyside	"	" 22
22. Heaslip	"	" 23
23. Marter, Mission Hall	"	" 25
24. Charlton	"	" 26
25. Swastika	"	" 27
26. Matheson	"	" 28
27. Homer Siding	"	" 29
28. Monteith	"	" 30
29. Cochrane	"	July 3
30. Porquis Junction	"	" 4
31. North Cobalt	"	" 5

DIVISION 24.—Mrs. F. W. Watts, 51 Chicora Avenue, Toronto.

1. Trout Creek	North Parry Sound	June 4
2. Golden Valley	" " "	" 5
3. Arnstein	" " "	" 6
4. Loring	" " "	" 7
5. Restoule	" " "	" 8
6. Hotham	" " "	" 9
7. Powassan	" " "	" 11
8. West Korah	Centre Algoma	" 13
9. Goulais	" " "	" 14
10. Tarentorus	" " "	" 15
11. Base Line	" " "	" 16
12. South Prince	" " "	" 18
13. East Korah	" " "	" 19
14. Sylvan Valley	North Shore Algoma	" 20
15. Echo Bay	" " "	" 21
16. Gordon Lake	" " "	" 22
17. McLennan	" " "	" 23
18. Desbarats	" " "	" 25
19. Plummer	" " "	" 26
20. Johnston's School House	East Algoma	" 27
21. Bruce Station	" " "	" 28
22. Cloudslee	" " "	" 29
23. Sowerby	" " "	" 30
24. Iron Bridge	" " "	July 3
25. Walford	" " "	" 4
26. Lee Valley	West Nipissing	" 5
27. Mattawa	East Nipissing	" 6
28. Eau Claire	" " "	" 7
29. Feronia	West Nipissing	" 9

DIVISION 25.—Dr. Mary McKenzie-Smith, Gravenhurst.

1. Little Current	East Manitoulin	May 29
2. Sheguindah	" " "	" 30
3. Green Bay	" " "	" 31
4. Tehkummah	" " "	June 1
5. South Baymouth	" " "	" 2
6. Silver Bay (Big Lake)	" " "	" 4
7. Rockville	" " "	" 5
8. Mindemoya	" " "	" 6
9. Carnarvon	" " "	" 7
10. Grimesthorpe, Red Church	West Manitoulin	" 8
11. Billings	" " "	" 9
12. Kagawong, Orange Hall	" " "	" 11
13. Ice Lake	" " "	" 12
14. Barrie Island	" " "	" 13
15. Gordon, No. 4 School House	" " "	" 14

16. Poplar, School House	West Manitoulin	June 15
17. Elizabeth Bay, School House	"	" 16
18. Silver Water, Foresters' Hall	"	" 18
19. Carterton	St. Joseph's Island	" 20
20. Kentvale	"	" 21
21. Richards Landing	"	" 22
22. Parry Sound	West Parry Sound	" 25
23. Orrville, Town Hall	"	" 26
24. Carling, No. 2 School	"	" 27
25. Dunchurch	"	" 29

DIVISION 26.—Mrs. B. O. Allen, 419 S. Archibald St., Fort William.

MUNRO, J. M., Slate River Valley, June 11 to July 4.—Mr. Munro, a practical bee-keeper, and a man thoroughly conversant with the possibilities of the bee business in Northern Ontario, will address the meetings in Kenora and Rainy River Districts.

1. Dorion	Thunder Bay	May 29
2. Port Arthur	"	" 30
3. Fort William	"	" 31
4. McIntyre's School	"	June 1
5. Slate River	"	" 2
6. Carter's School House	"	" 4
7. Murillo	"	" 5
8. Conmee	"	" 6
9. O'Connor	"	" 7
10. Hymers	"	" 8
11. South Gillies, School House	"	" 9
12. Dryden	Kenora	" 11
13. Oxdrift	"	" 12
14. Minnitaki	"	" 13
15. Eagle River	"	" 14
16. Kenora	"	" 15
17. Sleeman	Rainy River	" 18
18. Pinewood, Hall	"	" 19
19. Stratton	"	" 20
20. Shenston	"	" 21
21. Barwick	"	" 22
22. Emo	"	" 23
23. Matherford	"	" 25
24. Kingsford East	"	" 26
25. Barnhart, Hall	"	" 27
26. Big Fork, Mrs. D. Connel's Home	"	" 28
27. Devlin	"	" 29
28. La Vallee	"	" 30
29. Burriss	"	July 3
30. Crozier	"	" 4

LIST OF LECTURERS AND SUBJECTS

ALLEN, MRS. B. O., 419 S. Archibald St., Fort William.—Mrs. Allen has proved a most capable and valuable district officer in the Fort William section. Her thorough knowledge of conditions in Northern Ontario and her impressive way of imparting her information will make her services particularly valuable to Institutes in that section of the Province.

Subjects:—

- "Development of Community Life."
- "Canadian Women in War Time."
- "Health and Welfare of the Child."
- "Home Making."
- "Our Rural Schools."

BACKUS, DR. ANNIE, Aylmer.—Dr. Backus is a physician with a live practice, and her discussions of health problems will be found of eminent value. She has taken a keen interest in Institute work in her own district, is a forceful speaker, and her wide knowledge of affairs makes her lectures of a character to be remembered.

Subjects:—

- "The Conservation of Health in the Rural Districts."
- "Consumption and Its Prevention."
- "Health and How to Procure it."
- "The Medical Inspection of Public Schools."
- "The Physical Development of the Child."
- "Education and What It Means."
- "The Importance and Meaning of Woman's Work."
- "War and Its Relation to Women."

BOLTON, MRS. M., Wiarton.—Mrs. Bolton is an ex-school teacher who has wide experience in the work of women's organizations and in child-welfare work. As an Institute officer and leader in rural community work she has been most successful, and her thorough, careful handling of the subjects announced will be found both helpful and instructive.

Subjects:—

- "How the School and Home May Help Each Other."
- "The Call to the Woman of To-day."
- "Lessons From the War."
- "Conservation of Health."
- "Economy in the Home in Time, Money, and Energy."

BRETHOUR, MRS. J. E., Burford.—Mrs. Brethour has been a leader in Institute work in Brant County for a number of years, with the additional experience of representing the Department as a lecturer in other sections of the Province. She has a thorough understanding of rural conditions, and her addresses are animated, interesting and instructive, and are especially helpful to those who are responsible as officers of the Institutes.

Subjects:—

- "Simple Entertaining in the Country."
- "Is a Woman's Time Worth Anything?"
- "The Evolution of the Country Woman."
- "Country Life as I have Found It."
- "Duties and Privileges of Institute Officers."
- "Living up to Our Motto."

BROWN, DR. CAROLINE, 383 Ossington Ave., Toronto.—Dr. Brown has had experience in teaching school in both the country and city. She is now a practising physician in the City of Toronto. She has served as House Surgeon in the Watertown City Hospital, New York, and in the Rotunda Hospital, Dublin, she made a special study of the care of the infant, maternity cases, and diseases of women. Recently she has been granted an honorary life membership in the St. John's Ambulance Association in recognition of services as a lecturer. Dr. Brown is particularly interested in school problems and has had experience in medical school inspection work.

Subjects:—

- "Home Nursing."
- "First Aid—St. John's Ambulance."
- "Home and School Clubs."
- "Medical Inspection of Schools."
- "Character Building."
- "How to Keep Well."
- "The Need of the Hour."

CAMPBELL, MISS SUSIE, 112 Oakwood Ave., Toronto.—Miss Campbell was one of the first Institute workers, and her untiring efforts and practical ideas have won friends for her all over the Province. As District Secretary for Peel County, Miss Campbell has kept in close touch with Patriotic, Red Cross and Community work, and can give most helpful suggestions along these lines. She is an ex-teacher and is prepared to address Public and High School pupils.

Subjects:—

- "Individual Life of a Young Woman."
- "Influence of Women and Men."
- "The Judicious Housekeeper and Homemaker."
- "Home and School: The Ideal Country School."
- "How Women Can Aid Agriculture."
- "The Power Our Institutes Should Wield in Adjustment After the War."
- "The Broader Outlook of Women."
- "The Vegetable Garden."
- "Rural Social Life."

CHAPMAN, MISS ETHEL M., 22 Radford Ave., Toronto.—Miss Chapman is a clear, forceful, entertaining speaker with up-to-date information regarding the work of the Institutes, and progressive ideas as to the possibilities in the work, especially in so far as the girls of the Institute are concerned. As a rural public school teacher, Domestic Science graduate, Institute worker, and journalist, Miss Chapman has had experience and gathered information of great value to the Institutes.

Subjects:—

- "The Institute's Opportunities This Year."
- "Things Girls Can Do—At Home, in the Community, in Business or Professional Work."
- "Helping the Twig to Grow Straight—What Medical Inspection and School Clinics Can Do."
- "Such Stuff as Homes are Made of—and Communities."
- "Conveniences and Labor-Savers in the Farm Home."
- "Literature of To-day, and Books for a Home Library."
- "Outside Problems That Concern the Homemaker."

COLLINS, MISS E. M., Ancaster.—Miss Collins has had several years' experience as a Demonstration-Lecturer in Sewing and as a lecturer to Women's Institutes. Her success as a demonstrator and teacher, together with the ability to instruct in a pleasing forceful manner, will insure valuable service to the Institutes.

Subjects:—

- "The Principles of Dress."
- "A Girl's Preparation for Life."
- "Homemaking Ideals."
- "Institutes—Their Aims and Achievements."

CONOVER, MISS E. G., Brampton.—Miss Conover is a Domestic Science graduate who has taken post-graduate work at Columbia University. She has put special study on the subjects announced, and will be prepared to demonstrate in connection with the first two lectures.

Subjects:—

- "Making the Best of What We Have."
- "Canning Fruits and Vegetables."
- "Gain Time By Saving It."
- "Choosing Foods and Planning Meals in War Time."
- "Preparedness For Girls."

COUTTS, MRS. K. B., Thamesville.—Mrs. Coutts has taken an active interest in Institute work, not only in her local branch, of which she has been an officer for several years, but also throughout the surrounding district. Her experience as a public school teacher in town, city and country, and in connection with the work of Historical Societies, Study Clubs, etc., will enable her to present most valuable information and suggestions to the Institutes.

Subjects:—

- "The Story of the Needle."
- "The Power of Words."
- "Social Life and Education in Rural Districts."
- "Legal Status of Women in Ontario."
- "The Child—How to Make the Most of Him."
- "Women's Institutes and Civic Life."
- "Pioneer Days."
- "How Women are Helping Win the War."

DUNCAN, MISS B., 5 Ridout St., Toronto.—Miss Duncan is a Domestic Science graduate with practical experience in both a farm and a city home. As a college teacher and Demonstration-Lecturer she has been most successful and the Institutes will find her addresses of interest to the girls as well as to the experienced women.

Subjects:—

- "Household Essentials."
- "Waste—Necessary and Unnecessary."
- "The 3 R's—Recreation, Rest, and Right Living."
- "Conditions as we Find Them and What to do to Improve Them."
- "The Girls of To-day and To-morrow."
- "Woman's Responsibilities."

FOTHERINGHAM, DR. S. L., 73 Walmisley Blvd., Toronto.—Dr. Fotheringham is a graduate in Medicine of Toronto University with post-graduate work in Philadelphia and London, England; specializing in children's work. Apart from Medicine she is much interested in practical Nature Study in its relation to education, health and present-day need.

Subjects:—

- "Child Welfare Work."
- "Practical Education."
- "Public Health Problems."
- "Efficient Living."
- "First Aid Emergencies."
- "The Power of Thought."
- "Women's Present Opportunities."
- "Nature Study."

GILHOLM, MISS B., Bright.—Miss Gilholm has had a thorough training, with considerable practical experience in Dairy lines, and is at present on the teaching staff of Macdonald College, Quebec. Miss Gilholm's keen interest in country life and social service, together with her experience as an Institute officer, make her addresses of most practical value.

Subjects:—

- "Soft and Fancy Cheesemaking (demonstrated)."
- "First Aid, Emergencies, Home Nursing."
- "The Stranger Within Our Gates."
- "Our Privileges and Responsibilities as Canadian Women."
- "Our Opportunity."
- "A Square Deal for 'The Other Child.'"

GRAY, MISS GERTRUDE, 650 Bathurst St., Toronto.—Miss Gray is a graduate in Domestic Science with a wide experience in Institute work. She is a most skilful Demonstration-Lecturer, and her talks on foods and food values are practical, interesting and easily understood by those who have not given such matters any special study.

Subjects:—

- "Facts Which Make Work Interesting."
- "Food Production and Preparation."
- "The Individual and the Community."
- "War Time Responsibility and Opportunity."
- "Women's Work—Past and Present."
- "Things Worth While."

GRAYDON, MISS HARRIET E., Streetsville.—Miss Graydon is a graduate nurse with considerable experience in hospital management, specializing in nervous diseases. She is keenly interested in the work of the Women's Institutes, having been active in making the Institute at Streetsville a success. She is much interested in girl's work in connection with the Institutes.

Subjects:—

- "Typhoid Fever, Care and Personal Care."
- "Contagious Diseases."
- "Health Hints."
- "Emergencies and Observation of Symptoms."
- "Sick Room and Care of Invalids."
- "Economical Living."

GREER, MRS. G. H., 870 Wellington St., London.—Mrs. Greer's several years of Institute work have proved her to be a most acceptable delegate. Her experience in practical housekeeping and office work and her close study of economic and social conditions enable her to handle most capably the subjects announced.

Subjects:—

- "Housekeeping and Health."
- "Our Obligation to Work—Now and After the War."
- "Thrift in War Time." "Food Problems."
- "Vegetables and Fruits—Their Use and Preparations."
- "Salads and Soups—Why we should use more."
- "Preparedness."
- "Thoughts by the Way."

LOWE, MRS. J. J., Hespeler.—Mrs. Lowe is an enthusiast in Women's Institute work and was active for a number of years in the Waterloo County Institutes. In addition she has addressed meetings in many other sections of the Province as a Departmental Representative. Her practical experience, wide reading and tact insures addresses and advice of much value.

Subjects:—

- "Beneficial Suggestions to Branch Institutes."
- "Home Values."
- "Economize by Saving."
- "Some Advantages of the Country Home."
- "Our Bit."

MC EWEN, DR. ANNABEL, 37 Teresa St., London.—After graduating in Medicine from Toronto University, Dr. McEwen was Medical Inspector of Schools in the Canadian West, for two years. During that time she did considerable work in Mothers' Clubs. She has also spent one summer working with the Homemakers' Clubs of Saskatchewan. Dr. McEwen has spent some time as a physician in the Philadelphia Hospital for Women and Children, and since coming to Ontario has done most valuable Demonstration-Lecture work in First Aid and Home Nursing. She is a very pleasing speaker and her services cannot fail to be appreciated.

Subjects:—

- "Medical School Inspection."
- "First Aid—To a Happy Disposition."
- "Prevention of Disease."
- "A Paying Investment."
- "Feeding the Household."
- "Our Aim To-day—Usefulness."

PARSONS, CAPT. (MRS.) H. W., Northcote Apartments, Jarvis St., Toronto.—Mrs. Parsons is a worker of experience in the Women's Institutes, and has been identified with some of the other leading women's organizations of Canada. During the past two years her services have been much in demand by patriotic organizations. She is a fluent, forceful speaker with a wide knowledge of subjects of interest to both the women and girls of the Institutes. School Boards should arrange to have Mrs. Parsons address the children in the schools during the forenoon.

Afternoon and Evening:

- "Women in Industry."
- "The Story of My Trek."
- "Experiences in Germany."
- "A Box for Overseas."
- "Parliamentary Procedure."
- "War from Various Viewpoints."
- "Let Nothing be Wasted."
- "A Woman's Duty Towards the National Debt."

PATTERSON, DR. MARGARET, 97 Walmer Rd., Toronto.—Dr. Patterson grew up on an Ontario farm, graduated in Medicine, and after a year's post-graduate work was engaged in medical work in India for several years. In recognition of the public services which Dr. Patterson rendered to India, she was awarded the "Kaisiri-Hind" medal at the coronation of King Edward. Since her return to Canada she has devoted much time to Social Service work. Dr. Patterson is a member of the Executive Committee of the Toronto Red Cross, and of the National Council of Women. She is in a position to give authentic information regarding the work of these organizations.

Subjects:—

Afternoon—

- "Common Diseases, Prevention and Cure."
- "The History and Work of the St. John Ambulance Association."
- "The Conservation of the Children."
- "Individual Responsibility in Public Health."
- "Woman's Part in Social Service."

Afternoon or Evening—

- "Medical Inspection in Schools."
- "India's Place in the British Empire."
- "Life in the Orient."
- "The Privilege and Responsibility of Citizenship."
- "The Red Cross in War and Its Present Needs."
- "How to Become Efficient."
- "Some Canadian Problems."

POWELL, MISS M. V., Box 453, Whitby.—Miss Powell has had several years' experience in Institute work in Ontario, and has also spent some time in establishing the work in New Brunswick. She is keenly interested in school problems and occupies a seat on the local Board of Education. Her pleasing delivery and the thoroughness with which she handles her subjects have made her a most valuable lecturer.

Subjects:—

- "Women as Empire Builders."
- "Making a Good Citizen."
- "Helping Our Boys and Girls."
- "A Present Day Need."
- "National Needs."
- "War-time Thrift."

PRESTON, MISS JANET M., Napanee.—Miss Preston is a Domestic Science graduate, who has had wide experience in teaching and public speaking. She has attended Women's Institute meetings for several seasons and has given most acceptable service. In the demonstrations in Sewing, Miss Preston will show how to put dresses together. The simpler styles of children's clothes will also be demonstrated, and she will give a talk on "How to Dress Neatly."

Subjects:—

- "The House and Home."
- "What We All Ought to Know of Ourselves."
- "We Women and Girls."
- "Our Clothes and How We Build Them" (demonstrated fully).
- "An Ounce of Prevention."
- "Treatment at Home of Common Diseases."

PRICE, MRS. H. W., 474 Palmerston Blvd., Toronto.—Mrs. Price's training in Domestic Science and her successful experience as an Institute worker, followed by practical experience in the home, places her in a position to give instruction and advice of special value to the mother. Mrs. Price will be prepared to give demonstrations in Home Nursing and First Aid.

Subjects:—

- "Mothercraft."
- "What Do I Want for My Child."
- "Home Nursing and First Aid."
- "Women's Present Responsibilities and Future Opportunities."
- "Food Fads and Thrift."

SCOTT, MISS ANNIE, Nottawa.—Miss Scott is a Domestic Science graduate who has done excellent work in Demonstration-Lecture courses. The Institutes which she may visit will find her most capable and eager to give information of practical value.

Subjects:—

- "The Patriotic Work of Institutes."
- "The Home Care of the Sick."
- "Foods—Economy—Health."
- "Tempting Salads for Hot Days."
- "The Farm Home—Conveniences and Labor-Savers."
- "Rural Community Life and Organized Recreation."

SIRRS, DR. L. K., R. R. 1, Campbellville.—After spending some time in teaching school, Dr. Sirrs took a course in Medicine, graduating with honors. She has had a wide experience in general practice, is much interested in child welfare and moral and social problems, and has conducted most successfully several series of Demonstration-Lectures in First Aid and Home Nursing. Her work with girls' clubs in her home community insures her having something of value for the girls as well as the women in the Institute.

Subjects:—

- "The White Plague—Prevention, Care, Treatment."
- "Medical Inspection of Schools."
- "First Seven Years of a Child's Life."
- "Emergencies and First Aid—demonstrated."
- "Contagion, Infection, Disinfectants."
- "Wild Bird Guests and How to Entertain Them."
- "How to Keep our Boys and Girls on the Farm."
- "Habits and What they Lead to."

SMITH, DR. MARY MCKENZIE, Gravenhurst.—Dr. Smith was born in Nova Scotia and after graduating in medicine was engaged in medical work in India for several years, later taking post graduate work in London, England. She has had considerable experience in Institute work, particularly along the lines of Medical Inspection of Schools, and Demonstration-Lecture work in Home Nursing. She is deeply interested in all lines of social service work and her addresses will be found most practical and full of information.

Subjects:—

- "Red Cross Work."
- "The Home Care of the Sick—demonstrated."
- "Tuberculosis—Prevention, Care and Cure."
- "The Proper Diet and Care of Children."
- "Crossing the Bridges with our Children."
- "What Every Woman Ought to Know."
- "Woman and Her Present Responsibility."

STEPHEN, MRS. LAURA ROSE, Huntingdon, Que.—Mrs. Stephen was the first lady Institute speaker in the Dominion of Canada, and has travelled from the Atlantic to the Pacific in connection with Institute and other educative work along home-making and dairy lines. Her pleasing addresses, her wide knowledge of affairs and her thorough understanding of conditions in both farming and town communities place her in the front rank of Institute workers. Mrs. Stephen is well known as a writer on dairy topics and has published a book on "Farm Dairying."

Subjects:—

- "Kitchen Ways and Wrinkles."—Illustrated.
- "Economy in the Kitchen."
- "The Part the Dairy Farmer's Wife Should Take in Her Husband's Business."
- "The Making of Farm Butter and Soft Cheeses."
- "What Milk Is—Its Food Value; Its Care."
- "Frozen Desserts and Salads."
- "Making the Home a Better Place in Which to Live."
- "The Influence of Environment."
- "Patriotism and Home Production."
- "Living a Life is More Than Making a Living."

SUTHERLAND, MISS D. M., Embro.—Miss Sutherland is another ex-teacher who was attracted to Macdonald College, Guelph, from which institution she was graduated in Domestic Science. She was instructor in Dietetics in Johns Hopkins Hospital, Baltimore, Maryland, for two years, returning to her native Province to take up work in connection with the Women's Institutes. Miss Sutherland has proven herself an efficient, popular and sympathetic worker, and is thoroughly conversant with domestic problems relating to the people of agricultural Ontario.

Subjects:—

- "Economy in the Home."
- "The Food Problem—Its Relation to Health."
- "The Boys and Girls of To-day."
- "Country Life—Its Advantages and Possibilities."
- "Women in War Time."
- "Education by Reading."

TOMLINSON, MRS. M. A., Simcoe.—Mrs. Tomlinson has had considerable practical experience in poultry-raising, and in the management of a small farm given to fruit, poultry and bee-keeping, and will be prepared to give thorough advice on poultry raising and the home vegetable garden. She is experienced as an officer of women's organizations, and is, we feel, most capable of rendering valuable service to the Women's Institutes.

Subjects:—

- "Hatching and Rearing Chickens."
- "All the Year Round Egg Production."
- "The Vegetable Garden."
- "The Possibilities for Women in Agriculture."

WATTS, MRS. F. W., 51 Chicora Ave., Toronto.—Mrs. Watts has had marked success both as an Institute officer and lecturer. She needs no introduction to the members of Women's Institutes, having covered the greater part of Ontario addressing meetings. Mrs. Watts has for several years judged Ladies' Work, Fine Arts, Dairy Products, etc., at the Fall Fairs in a manner entirely satisfactory.

Subjects:—

Afternoon—

- "Beauty of Person and Character."
- "The Conservation of Health."
- "A Talk with Mothers and Girls."
- "What are you Doing to Help Your Institute?"
- "Our Part in the War."
- "Wearing Apparel and Household Articles." Demonstration in Cutting and Making (bring paper and scissors).

Evening—

- "Why Is It."
- "Your Influence in the Home."
- "Gardening for Health and Profit."

WOELARD, MRS. M. L., 426 Bloor St. W., Toronto.—Mrs. Woelard has had practical experience along the lines indicated by the subjects announced. She has taken a special course in Sewing, and has the faculty of imparting information in a clear and pleasing manner. Mrs. Woelard will be prepared to demonstrate some one of the lines covered in the regular Demonstration-Lecture Course in Sewing, and to give full particulars as to the Demonstration-Lecture Courses.

Subjects:—

- "How to Grow Vegetables."
- "Fruit Canning, Jelly Making, Pickling, etc."
- "Meat Substitutes."
- "Why I Make My Own Clothes—and How to Make Them,"—demonstrated.
- "Health and How to Conserve It."

YATES, MISS MARY, Port Credit.—Miss Yates is one of the recognized poultry authorities of the Province, having been employed to a considerable extent during the past several years in addressing special poultry meetings. In addition to this, Miss Yates has had wide experience and training along horticultural lines. She is a most capable platform woman and the Institutes may expect up-to-date information presented in an attractive, impressive manner. Miss Yates won the Institute Gold Medal at Port Credit for Hardy Herbaceous Perennials, and will be prepared to give information upon the management of small flower shows and vegetable competitions which have been a feature of the work in the Institute with which she has been identified.

Subjects:—

Poultry Subjects:

- "Modern Methods of Hatching and Rearing Chickens."
- "Eggs All the Year Round."
- "Dressed Poultry—Preparation for Market."
- "Poultry on the Bill of Fare."

Horticultural Subjects:

- "The Small Vegetable Garden."
- "Annual Flowers."
- "Informal Planting of Home Grounds."
- "A Chat About Roses."
- "Meatless Days."

General Subjects:

- "Community Life."
- "The Duty of Women in War Time."

Demonstrations.

Miss Yates will be prepared to give demonstrations as indicated below. For demonstrations 5 and 6 the demonstrator will provide the necessary equipment.

General Requirements:

1. Substantial table, not too high.
2. A dozen newspapers.
3. A cloth and a bowl of water.

1. Killing: (a) By dislocation of the neck.
- (b) By stabbing.

Special Requirements.—Live bird that has been fasted at least 24 hours at time of demonstration, and a good-sized receptacle for feathers.

2. Trussing for Roasting.

Special Requirements.—A bird that has been killed after fasting at least 24 hours. It should have been dry picked and the head and feet should be left on. The bird should be cold at the time of demonstration, but should not have been killed more than a few days.

3. Boning a Fowl.

Special Requirements.—A bird that has been killed after fasting 24 hours and then dry picked.

N.B.—*The bird must on no account be drawn.*

4. Carving.

Special Requirements.—A whole cooked young bird and a sharp carving knife and fork.

N.B.—*The bird should be placed upon a large dish.*

5. The Market Egg and Its Variations.

6. Candling Eggs.

SEVENTEENTH ANNUAL REPORT
OF
The Agricultural Societies
OF ONTARIO

AND OF THE CONVENTION OF THE
Ontario Association of Fairs and Exhibitions

FOR THE YEAR

1917

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO:
Printed by A. T. WILGRESS, Printer to the King's Most Excellent Majesty
1917

Printed by
WILLIAM BRIGGS
Corner Queen and John Streets
TORONTO

To His Honour SIR JOHN STRATHEARN HENDRIE, C.V.O., a Lieutenant-Colonel in
the Militia of Canada, etc., etc., etc.

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I hereby present for the consideration of your Honour the Annual Report of
the Agricultural Societies of Ontario for 1917.

Respectfully yours,

W. H. HEARST,
Minister of Agriculture.

TORONTO, 1917.

CONTENTS.

	PAGE
OFFICERS FOR 1917	6
TREASURER'S REPORT	6
ANNUAL CONVENTION:	
President's Address: J. C. STUART	7
Report of Superintendent: J. LOCKIE WILSON	9
Short Courses for Live Stock Judges: E. S. ARCHIBALD	21
Benefits of Short Courses for Field Crop Judges: W. J. SQUIRRELL	26
Birds in relation to Agriculture: W. HARVEY McNAIRN	28
A Cause worth fighting for: REV. CANON CODY	35
Address: HON. ANDREW BRODER	49
How we improved Picton Fair: A. P. MACVANNELL	51
Ladies' Work at Fall Fairs: MISS M. V. POWELL	56
Address: W. BERT ROADHOUSE	61
Poultry, Living and Dead: MISS MARY YATES	64
Suggested Improvements in Field Crop Competitions: C. A. ZAVITZ	69
Address: ANDREW ELLIOTT	71
Increasing Attendance at Fairs: A. R. G. SMITH	72
Reports of District Directors	76
Amendment to the Agricultural Societies' Act	86
Improvement of Fall Fairs: S. B. MCCREADY	87
STATISTICS:	
Comparative Statement of Grants to Agricultural Societies for 1916 and 1917..	95
Special Grants to Societies in the Districts	98
Grants to Spring Fairs	99
Grants to Stock Societies	99
Special grants	99
Grants to Societies for Field Crop Competitions	100
Grants to Societies for losses in gate receipts	102
Reports of Stock Societies	109
Prize Money paid in 1916	103
Receipts and Expenditure of Societies in 1916	110

ANNUAL REPORT

OF THE

Agricultural Societies of Ontario

1917

TO THE HONOURABLE SIR WM. H. HEARST,

Minister of Agriculture.

SIR,—I have the honour to present herewith the Seventeenth Annual Report of the Agricultural Societies of Ontario, and of the Annual Convention of the Association of Fairs and Exhibitions.

Notwithstanding unfavorable crop conditions, our Exhibitions held in 1916 had a larger attendance than ever before in their history, which extends over a period of 125 years. The interest that was taken in the Fairs and Exhibitions of Ontario in 1916 by citizens generally is shown by the fact that there passed through the gates of these organizations one million seven hundred and fifty thousand persons, who viewed the products of farm, factory and mine. The exhibits of field crops and live stock were never surpassed. Weather conditions were generally favorable, but over one-half of the grant for wet weather losses was required.

Appended herewith are the financial statements of all the Societies, the prize money paid in the various classes, value of grounds and buildings, grants to spring and seed fairs, special grants to Societies in northern districts, reports of Stock Societies, grants to Societies holding field crop competitions and those the gate receipts of which were adversely affected by rain, and a comparative statement of legislative grants for 1916 and 1917.

All of which is respectfully submitted.

Faithfully yours,

J. LOCKIE WILSON,

Superintendent.

OFFICERS FOR 1917

President WM. S. SCARF, Durham.
First Vice-President L. J. C. BULL, Brampton.
Second Vice-President W. J. CONNELLY, Cobden.
Secretary and Editor J. LOCKIE WILSON, Toronto.
Treasurer ALEX. MCFARLANE, Otterville.
Auditor R. AGNEW, Toronto.

Directors.

District No. 1..... J. C. STUART, Osgoode Station.
 District No. 2..... J. S. SIBBITT, Kingston.
 District No. 3..... W. J. BARBER, Rossmore.
 District No. 4..... E. H. PURDY, Port Perry.
 District No. 5..... R. B. HENRY, Orangeville.
 District No. 6..... J. E. PEART, Hamilton.
 District No. 7..... R. E. COWAN, Galt, R.R. 3.
 District No. 8..... S. J. MONTEITH, Stratford.
 District No. 9..... F. W. JOHNSTON, Walkerville.
 District No. 10..... JNO. McDERMID, Lucknow, R.R. 6.
 District No. 11..... W. J. HAMILTON, Raymond.
 District No. 12..... E. F. STEPHENSON, New Liskeard, and
 WM. MARSHALL, Sault Ste. Marie.

TREASURER'S REPORT FOR 1916.

Expenditure.

To amounts paid Executive at-	
tending meeting	\$77 50
Expenses Directors attend-	
ing fairs	20 00
Auditors	4 50
Assistants at annual meeting	15 00
Receipt books	1 50
Officers' salaries	100 00
Programmes	14 00
Badges	2 00
Legge Bros., photographs...	11 00
Exchange on cheque	10
Postage	4 63
Balance in bank	127 80
	\$378 03

Receipts.

By balance in bank	\$134 13
Memberships for 1916	240 00
Bank interest for 1916	3 90

\$378 03

Audited and found correct.

R. AGNEW,
Auditor.

ALEX. MCFARLANE,
Treasurer,

February 6th, 1917.

ONTARIO ASSOCIATION OF FAIRS AND EXHIBITIONS

SEVENTEENTH ANNUAL CONVENTION

The Seventeenth Annual Convention of the Ontario Association of Fairs and Exhibitions was held in the Canadian Foresters' Hall, 22 College St., Toronto, on February 6th and 7th, 1917.

PRESIDENT'S ADDRESS.

J. C. STUART, OSGOODE.

It is gratifying to see so many delegates here to-day, coming, as you do, from all sections of Ontario.

An era of prosperity has dawned, the season just past having been one of the most successful from the point of view of directors of fairs and exhibitions, which we have ever experienced.

Although crop conditions have been unfavorable during the past year, still, owing to the enormous demand for food stuffs, more money was in circulation during the season just past than in any previous one. Consequently, everything was bound to prosper, and our fairs were not the only institution to benefit by these conditions.

I wish to thank you for the many kindnesses that have been shown during my term of office, and I would not be doing my duty to you or to myself if I did not refer to the lines that are of greatest moment to us at the present time.

The war which was started in 1914 is still unfinished, and although it looks as if the hill had been reached, and we were going down the other side to victory, yet many things have to be done before the consummation of that much desired end.

Although many of us cannot go to the front to fight for the Empire, still we can do our bit in helping to win the war by paying attention to the production of foodstuffs. The winning of the war is uppermost in our minds at the present time, and the production of foodstuffs for the armies in the field is of as much importance as the making of shells for the guns in the field. But there is talk at the present time that the war will be finished in 1917, and unless we are prepared for the season of peace after the war, there are going to be conditions created that will astound the world. When the millions of men that are now fighting on foreign fields are turned back to civilization new ideas will prevail. I can only repeat what Lloyd George has said, "The war has changed us. Heaven knows it has taught us more than we yet understand. It has opened a new age for us, and we want to go into that age together with our fellows overseas, just as we have come through the darkness together, and shed our blood and treasure together." Again it has taught us more than we yet understand. Are we preparing ourselves for the understanding that will later come to us? Are we, as directors of the different fair boards here represented, paying the attention to agricultural production that we should? Our fairs were originally started with the idea of educating farmers along better lines of agriculture. Are some of us losing sight of this idea? Are we paying more atten-

tion to horse races and less attention to agricultural products, than we should? The production of foodstuffs and the education of farmers seem to be the bounden duty of every patriotic citizen of Canada to-day. We must prepare for the period after the war. We must be in a position which will enable us to provide the greatest help to returned soldiers. Would it not be our duty, therefore, to, as far as we can, through our fair boards, encourage agricultural production of all kinds? Better prizes, better classification along agricultural lines, would help a great many of our fairs. A number of those which I visited last fall were what we can call "top



WM. SCARF.
President, 1917.

notchers," and yet not one dollar of their prize money was offered for horse races. No balloon ascensions or slack wire artists were in evidence, yet thousands of people crowded the grounds of those Exhibitions, and came away feeling that it had been good for them to have been there. They came away with a feeling that agriculture was not the meanest of professions, but one of the greatest and best.

Would it not be possible for the delegates here to go home, and when you are preparing your prize lists arrange with the directors to place, as I stated before, better prizes, and better classification in your prize lists, and thus encourage the young farmer with the idea of paying more attention to production of farm products?

We want to elevate the position of the farmer in this country. We want to make him feel that he is better than the average man who participates in a fall fair

horse race, and in no way can we do that better than by showing him that we appreciate the work he is endeavouring to do.

As I stated before, we cannot all go to the front, yet if we are worthy of the name of British citizens, then is it not our duty to do everything that we can to help win the war at the present time?

I trust that we will have a successful Convention, and that we will be able to return to our homes with ideas that will help our many boards represented here to-day.

W. J. CONNELLY, Cobden: Last August when the Directors met in the Parliament Buildings and asked me if I would open the discussion to-day, on the President's address, if I had had a little more time, I would not have committed myself as quickly as I did. I wish to congratulate the President on the work that is being accomplished. I also want to congratulate our Superintendent, Mr. J. Lockie Wilson, on the able manner in which he has conducted the affairs of this Association. We have not been unmindful of the work that he has done for us, particularly in Eastern Ontario. He attended our annual meeting, which was one of the largest and best we ever had.

The greatest man who ever walked this earth, on one occasion compared himself to a vine, and said to the children of men that they must become the branches. This Association is a centre vine with numerous branches creeping out into every part of this great Province, and all the branches are alive and growing rapidly, and they are going to abide in this great centre, because all the good things you get for your fairs and exhibits come through this Association. But for the work you have done the Departmental Judges, the field crop grants, and wet weather insurance would never have been inaugurated.

REPORT OF SUPERINTENDENT.

-J. LOCKIE WILSON, TORONTO.

In welcoming you to this our Seventeenth Annual Convention, I do so with a feeling of pleasure and regret, pleasure at seeing so many of the stalwart veterans who never fail to honor us with their presence, sorrow from the fact that some have crossed the Great Divide, and we can no longer have the benefit of their advice and counsel. Outstanding among those who have been gathered to their fathers are the Hon. Jas. S. Duff and Dr. C. C. James. I know that every delegate in this great Convention will join with me in an expression of the loss sustained, and our deepest sympathy goes out to the sorely bereaved and sorrowing families of these friends of ours.

Nineteen sixteen has been a banner year for the Fairs and Exhibitions of the Province of Ontario. Excellent weather conditions prevailed during the greater part of the months in which they were held. With increasing interest shown, and the knowledge that exhibitions continue to be one of the greatest educational factors in the development, particularly, of the agricultural interests of the country, the largest crowds in the history of these organizations were in evidence everywhere. I wish to congratulate the members of the different agricultural societies throughout our jurisdiction on the marked improvement shown in the selection of their Boards

of Directors, and this year has shown the value of the introduction of energetic young farmers and business men to take charge of the important work required in maintaining successful fairs and exhibitions. Ours is of necessity, a business as well as an educational organization, and there is no room for an ornamental director on any of our Boards. I mean the one who is willing to accept office, wear a badge on Fair Day, and for the balance of the year neglect the important duties that should devolve on an efficient officer of an agricultural society. However, as has been previously stated, the weeding out process has been going on with beneficial results to all concerned.

The introduction of lady directors has proved of great advantage to the societies which have availed themselves of such service. Never before in the history of Ontario was there more need of a forward movement in the different lines of agriculture in which we are engaged. It is up to each one of us to do his or her part in the upward ascent to as near perfection as possible. There should be no such thing as "as you were;" we must, as our soldier boys would say, "Carry On." It is not much use boasting that an agricultural society has held its annual exhibition for seventy-five or a hundred years. The thing to be proud of is that in each succeeding year it has proved of greater educational value to the young farmers of Canada than the ones numbered in the annals of the past. Is your exhibition main hall brighter and cleaner than in any previous year? Are the poultry houses, cattle pens, and stables in such a condition that the directors and members are proud of them, and are those who pay their entrance fees pleased with everything which comes within their purview? Have you arranged to protect your dairy products, dressed poultry, bread and other domestic exhibits, which are injured by exposure to heat and dust by having a not necessarily expensive glass case with an ice box underneath which effectively protects those perishable exhibits? I have seen, and so have you, quantities of melting butter at fairs on a hot September afternoon decorated with the ubiquitous fly leaving in its train, so medical men assure us, millions of death-dealing microbes. Now that you all know the remedy, I am confident that the necessary steps will be taken to provide the means of protecting the dairy exhibits particularly, which comprise one of Canada's greatest industries.

If your fair grounds are as they were, officers and directors have not fulfilled the duties required of them. Are your judging rings roped and protected from the crowd, and have you a tier of seats around them, and if not, why not? Has your prize list been carefully revised? If not, why not? I am of opinion that the Boards of Directors of Agricultural Societies have the greatest opportunity for doing patriotic work of any institution in the land, and I know my appeal will not be in vain when I urge upon you to renew your efforts along the lines suggested for the coming fair.

Notwithstanding the fact that weather conditions were generally favorable, there was paid out in 1916 the sum of \$6,414 to societies, the gate receipts of which were lessened on account of rain. In passing, I wish to draw your attention to the fact that many of the weaker societies in Ontario have been saved from being crippled financially by the insurance scheme arranged for by the Government on your recommendation.

Under the Agricultural Societies Act as at present constituted, only 60 per cent. of the loss in gate receipts for the three previous years is allowed. I am of opinion that this percentage could be increased with good results to 75 per cent., and that instead of three previous years as provided for in the Act, it should be changed

to three previous normal years. This, you will readily understand, will prove more satisfactory, particularly to societies which have had bad weather conditions for three years in succession, and I will recommend to the Government that these suggested amendments to the Act be adopted.

We have made an estimate of those who attended the Fairs and Exhibitions in Ontario in 1916, and you will have a greater realization of the value of our work when you learn that 1,750,000 persons viewed your exhibits during that year. This is a good and sufficient reason for your work being well and faithfully done, connected as you are with an organization of such magnitude.

STANDING FIELD CROP COMPETITIONS.—These competitions continue to meet with the approval and support of the best element among the farmers of Ontario. In 1916 each society was allowed to make entry for two crop competitions, and, notwithstanding the fact that the season was an unfavorable one, those who entered, having taken greater care in the cultivation and harvesting of their crops, received much larger financial returns than their neighbors who took no part in this valuable educational work. In these competing fields no weeds were allowed to ripen and occupy space where useful plants should be, nor to utilize the fertility of the soil which should have gone to the production of an additional stalk of golden grain. The lesson learned is, pluck out the weeds and thus make room for the life-sustaining food that is so necessary in these strenuous times for the maintenance of the people of our Empire.

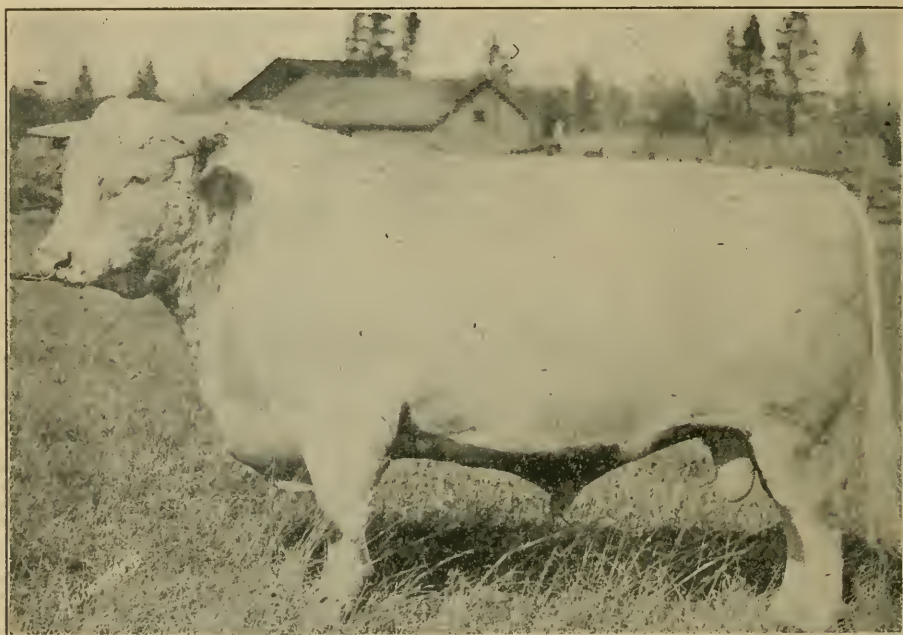
DEPARTMENTAL JUDGES.—The work of our judges both in live stock and field crops has not been up to as high a standard as in previous years owing to the fact that we did not hold our judging courses as usual. It is almost an impossibility to continue uniformity in judging, particularly by score card, without at least once a year bringing our judges together and by actual demonstration in the fields and with selected live stock, going over the score cards point by point. In past years, our Short Courses were held in the early part of July just before clover, barley, and fall wheat were ready to cut. In many cases the judges went straight from the course with the instructions and a uniform system fresh in their minds, to do their work in fields entered in the competition, and were thus in a position to do justice to all concerned. The judges' circuits are usually completed in about two weeks, and for the rest of the year, in most cases, the uniform system of scoring fixed in their minds at the time becomes to a certain extent somewhat vague, as can be readily understood. If the Field Crop Competitions are to continue to be successfully conducted these judging courses are an absolute necessity.

We have now arrived at a time in this work when it is vitally important that it should be well done. The winning of a prize in these competitions means much, especially from a financial point of view, to those who enter, and if, through lack of sound judgment, a field is placed sixth, when it should have occupied a higher mark on the list, the competitor is not only barred from receiving the larger prize he should have had, but the opportunity is lost of exhibiting his grain at the winter fairs, the Canadian National and the Central Canada Exhibitions, where valuable prizes are offered.

PLOWING MATCHES.—Under the Agricultural Societies' Act, Directors have the power to expend a portion of their money for plowing matches. For many years Societies conducted very successful ones and there is no reason why this valuable

educational work should not be continued. Better cultivation of the soil means much to Canada and the Empire at this juncture, and the Directors of Agricultural Societies should carefully consider this latent line of their work.

Societies in the Province which hold no fairs, but utilize their membership fees and municipal and Provincial grants for the purchase and maintenance of pure-bred stock are prosperous and doing a great amount of good in the localities where they are established. There are a few Societies in our jurisdiction now holding fairs, that would, I am confident, do better work for themselves and their communities if they would cease holding exhibitions for a time, at least, and devote all the funds at their disposal to the purchase of pure-bred stock. A few Societies which hold exhibitions also keep live stock, for which they receive a grant, but, where this is done, no additional grant on membership is made. The clause of the Act governing live stock Societies is as follows:



First at Chicago International. Property of A. Gordon Auld, Guelph.

"Societies that have owned and maintained pure-bred stock, for the benefit of their members, for a period of at least nine months during the preceding year, shall receive a grant of \$50 for each registered stallion, \$20 for registered bull, \$10 for registered boar, and \$5 for registered ram so owned, and a special membership grant of one dollar for every member of the Society in good standing, up to fifty."

Complaints have been made by lady judges of the poor arrangement of exhibits which they are expected to judge. Instead of following the order of the prize list, goods in the same class were widely scattered in different parts of the hall. This involved great loss of time in hunting up the different articles and bringing them together for comparison. Lack of system has resulted in some of the articles being overlooked by the judge, and when the work was apparently completed, it was discovered that some of the exhibits had not been judged. In making application for lady judges, the class of work they are required to score should

be definitely stated. Some of our lady judges are highly competent to judge fancy work and fine arts, but are not capable of judging dairy products, etc.

Another important matter is for Secretaries to be most particular in giving the exact dates on which judges are required to do their work, and, if for any cause, a change has been made in the dates, the Superintendent should be promptly notified.

Many Societies make request for a judge of dairy cattle without specifying the breed most numerous in their locality. For instance, where Holsteins are most largely kept, it would be a great mistake to send a Jersey judge to that exhibition. If Secretaries will take the trouble to notify me, we will endeavor to arrange for a judge who understands the breed he has to score.

As showing the educational advancement since the early days when Departmental Judges were first applied for, at first one or two judges only were asked for, and expected to score all classes of live stock, and the work was accordingly very indifferently done. At the present time Departmental Judges are employed by some Societies for nearly every class.

Many Societies this last year have erected more commodious and up-to-date buildings, which have added materially to their welfare and given increased facilities for educational work.

Some Societies, with good results to all concerned, have a prepared programme with the time set when the different classes of live stock will be brought into the ring, and a large megaphone, which is easily procurable, is used for calling out the different classes. By this method, there is no excuse for animals being brought into the ring when the judging is nearly completed. While one section of a class is being judged, the next one should be called to the ring side and be waiting to step promptly into the ring when required. This arrangement saves time and the work moves along more rapidly and smoothly.

In revising the Rules and Regulations of your fair, a clause might well be inserted that "no exhibitor or groom shall be allowed to use or carry a whip while in the judging ring."

I have seen exhibitors smoking a pipe or cigar while exhibiting their animals in the ring. This is a practice that should be discontinued. Exhibitors should not enter horses that are unsound, particularly in the breeding classes. Animals with such hereditary diseases as bog spavin, string halt, sidebones, roaring and whistling, and blindness, except where this is caused by injury, should not be entered under any consideration. Should, however, this be done, the judge who knows his business, should ask exhibitors to remove animals suffering from such diseases from the ring before proceeding to make his awards.

I cannot conclude without referring to the fact that nations are to-day tottering in the balance, and the greatest Empire that mankind has ever known is at death grips with the most unscrupulous foe that has every raised his murderous hand in a ruthless attempt to banish liberty and justice from the face of the earth. But the spoiler's hand will be stayed and the bloody sword will be wrenched from the tyrant's grasp, and in that wrenching process the gallant sons of Canada are doing their part. From plowboy's furrow, from village counter, and from blacksmith's forge, they gather, gather, gather, and they will not fail.

Far off Pacific's shores heard Britannia's war blast sounding, and it re-echoed along Atlantic's rock-bound coast. The wild winds of these oceans swept swiftly back our answering cry, "We come to fight at thy side, O Mother of Nations and Freedom."

Let the shot-shattered fields of St. Julien, Festubert, Ypres, Courcellette and the Somme tell how fought in freedom's fight those gallant sons of ours in that awful testing time.

We grieve for our wounded heroes, we mourn for our gallant dead, and at this wintry eventide our hearts are far over a distant sea, throbbing beside our loved ones standing in the blood-soaked trenches of France and Flanders, holding their own in the fray, fighting, bleeding, dying that the cause of Justice, our cause, may not fail. On the storm-tossed billows of the seven seas ride triumphant the ships



Hackney Sire.

of the mightiest navy the world has ever seen. On their decks great Britain's seamen keep watch and ward and tireless vigil. The sea is His, He made it, and England keeps it free.

We who wait and work at home have much responsibility placed upon our shoulders, and it is pleasing to note that the great heart of Ontario beats in unison with that of our Motherland. What we can do to win this war we must do, so that freedom's flag, our flag, may continue in the coming time to float over peaceful homes.

DISCUSSION.

WM. SCARF, Durham: I cannot pass without saying a few words with regard to the great war which is now going on. There is scarcely a delegate in this hall who has not lost a relative or friend, and millions of dollars have been freely given for the support of wives and families of those who are fighting our battles at the front.

I have known our Superintendent ever since he took office, and I don't think the Government ever made a better appointment than when they appointed Mr. Wilson to this position. When Mr. Wilson spoke of the great war he touched a special feature very near his own heart, because his only boy is in the trenches of Flanders.

The growth of our Association has indeed been marvellous. At the first meeting in this city, seventeen years ago, there were only sixteen delegates. I am also pleased to see so many young men taking an interest in our Convention. This is a good sign, as no organization can prosper without young blood. If it were not for the smaller Societies, the splendid work done by the larger ones would not prosper. Therefore, all must work in harmony so that our Central Association may accomplish the work it was designed to do. So that all might profit by our work, every Society in this Province should become affiliated with this Association. The reason they have not done so is because they do not know the benefits that they have derived through this Association.

I was at a meeting in my own county and in discussing matters, one man said, "Our Society is in the centre of an agricultural district and instead of only 150 members we should have 500." I did not say anything until the time for appointing delegates to this Convention. This same man got up and said: "I do not think we need send a delegate down there. What benefits have ever come to us from the Fairs Association?" In reply, I said: "In the Counties of Grey and Bruce, we have twenty Societies (we had nineteen at that time, we have one more since), and I do not believe we could do without one of them. At that time the County was giving a \$320 grant apportioned among the Societies. In my particular Society that amounted to about \$16 per year. I met the District Representatives from other counties, and we found that we could get from \$1,200 to \$1,500. We went to work and organized that county and appointed a man to see each reeve from their respective districts. And they got them all to promise that that grant would be increased to whatever amount the other townships were giving. The total grant was increased to \$1,500 and ours from \$16 to \$75. Now, you would never have got that if it had not been for the Fairs Association. This last year you got about \$160 and another year you got nearly the same. Besides this, grants for Field Crop Competitions, wet weather insurance and other benefits have been obtained through the work of this Association and the backing of our Superintendent." The man jumped up and said, "I move that we send two delegates to Toronto," and there are two of their delegates here to-day.

Mr. Wilson, we all know, has his heart bound up in the Field Crop Competitions, and I think probably no man has done more than he has in that. But still, I think we could show where we could improve on the work that is going on in that competition. I do not believe we should limit the competition to five acres, although this should be the minimum. One man had some fifteen acres in a field. He took special care of five acres of that, pulling all the weeds, but when it came to harvesting, he cut it all together. He marked out his five acres with stakes at

each end and one in the middle. This man received first prize. I do not think it is right to take five acres out of a larger field unless a swath is cut around it and the grain from the five acres kept separate. Every exhibitor who takes a prize in the Field Crop Competition should be forced under penalty to exhibit a sheaf at his local Exhibition. At the Toronto Industrial there was no better exhibit shown than that of the sheaves from this competition.

A resolution was here suggested by Mr. Scarf, that it be made compulsory for every man who takes a prize at the Field Crop Competition to show for a small prize at the local exhibition. This was assented to.

WM. SCARF: We have no authority yet to hold that money if it is not done, because they have not given us the authority, but, if we pass a resolution here to-day, we could get it sanctioned by the Department.

Field Crop Competitions have done wonders for the agricultural communities. In the County of Middlesex, they tell me that through selection of seed and by planting uniform seed, they practically have weeded out the small potato. I remember when I was a boy we used to peel the big ones and plant the little ones.

There is another matter that I would like to have brought up to-day, and that is with regard to score cards. I do not think that one score card should be used to judge a field of corn for seed and one for ensilage. I think there ought to be two separate ones.

Mr. Wilson made reference to lady directors. I am pleased to say that we have a good many of them. We leave the arrangement of the Prize List for Ladies' work in their hands and have no further trouble. Everything is up-to-date.

Mr. Wilson suggested having seats in our show grounds. There is nothing more comfortable on a show-day than a place to sit down and rest, especially for a mother who has a little child. A Fair in the County of Huron bought two cords of hollow blocks, rented planks from a saw mill, and they now have the necessary seating capacity.

The improvement in the boards of directors referred to by the Superintendent is timely. No director should exhibit an animal in the ring with his badge on or have charge of the class in which he is an exhibitor.

DAVID EVANS: I listened with a good deal of pleasure to the addresses that have been given by the President and our esteemed Superintendent. It seems to me at this crisis, that they have struck a key-note that should find a ready response in the heart of every true man, and especially every true farmer who is a producer in this fair Province of ours. How are we going to reach that desideratum unless you as the producers take an honest pride in your vocation and endeavor to do something out of the ordinary? I should like to take you to our town. It is a difficult thing to get our farmers to bring to our fairs what they ought to be proud to show; they ought to be proud to show some of their work in producing from the soil or from the animal kingdom as breeders and producers. Why don't they do it? Are they going to allow the fairs of this county to drag? They should render to the state a service in showing what this great country is able to produce. It is lack of effort on the part of our farmers. I am not a farmer myself, but I take a great pride in what the farmer produces, and I would like to say this: Let a community take a pride in its fairs. It is the community that has sufficient fibre in its composition to show the rest of the world that they can produce just as good and better than the rest of the country—this would be leaving a heritage to the whole community.



One Section of Field Crop Exhibit at C.N.E., 1916.

It is necessary now in this crisis when we are going to have that enormous debt placed upon us. If we are going to lift the burden from our shoulders, it can only be done by greater production, and, sometimes, I feel ashamed when I come in contact with some of our farmers, to hear them say words that are unworthy of men who are tillers of the soil. I was talking to a man the other day who two years ago had ten cows. He said, "I used to get 20 cents a pound for butter, to-day I get 35 and 40, and five cows will give me the same results"; therefore he was keeping only five. The farmers who refuse to take and feed their pigs and sell them young at as good a profit to themselves are not patriotic citizens. They forget the fertilizer that is needed to keep the soil in condition. These are some of the things that the farmer is shortsighted in. Unless he does that he will be unable to take and discharge his full duties as a citizen in the best possible way.

There is another thing in connection with this: We are engaged here in the fair business. It is the work of the year to produce a creditable exhibition, so that when we come together we want to see every class represented, and unless we do that, we consider our fairs are not a success; and, when we send out our bills of entertainment and prizes, we must remember that it is not the farmer alone who comes to us. There are those who come for pleasure and we have got to entertain them, and it is not our business to take and instruct them in a line in which they don't want to be educated. We must place education and amusement side by side, so that we can get the best results, and in doing that, we can best serve the interests of our fairs and the best interests of this country at large.

W. S. WEST: All professions must work together in order to make the fair a success. Our worthy Superintendent has given a good address here this afternoon and thrown out a good many hints. I would like to have the various Secretaries give their experiences along the line of the hints thrown out by the Superintendent.

Speaking of my own experiences, the Superintendent referred to the selection of directors, and very correctly so; he stated it was a mistake to select wooden ones. We want directors who are alive and enthusiastic, and who will take their coats off and do their share of the work.

The Superintendent also spoke with regard to the selection of judges. He says that many societies are now employing a judge for almost every department. That would be very hard on the smaller societies. If we have one or two judges for cattle, and two for horses, I think that would be enough.

With regard to the Field Crop Competition, besides what the Vice-President has stated as to showing a sheaf of that grain at the local fair, I think every man who exhibits should show a bushel of grain as well. Up in our district, I ran across a man who actually bought grain and showed it at the fair, and also men who have shown old grain the following year. And when the matter was investigated, he would not give us a sworn statement that the grain was his own production of the last year.

WM. HICKSON: A point of prime importance is good directors. Every society should elect good ones. Our experience is that, when we find a director who, as our Superintendent says, puts his badge on and walks around and does nothing, when the next year comes he is put off. Lady directors are the most important officials in your whole show. We have three of them. Take ladies' work, fine arts and dairy and domestic produce, who knows most about these? Why, the ladies. Another point is educational work of the different societies. I agree with Mr. Evans in introducing both the educational and amusement features.

The field crop has influenced our production to a great extent, and has at least influenced the production of good seed, and previous to that it was impossible to get good seed in the Province of Ontario. Now we can get it at home.

I agree with the Vice-President in his argument against taking only a part of a field into the Field Crop Competition, and then harvesting the whole field together, thus introducing weeds and foreign matter into what is supposed to be first-class seed.

We have only had one judge who did not give satisfaction at our fall fairs, so that I do not think there is so much fault to be found with them.

A. J. GROSE: With reference to the points that our Superintendent has so ably brought to our attention this afternoon, none strike me more forcibly than the surroundings of the fair grounds being kept in good condition during the days of the fair, if not during the rest of the year. Speaking for our own fair, it has been the policy of our Society to pass on to the younger men the idea of being directors and running the affairs of the Association, and I can assure you from my thirty years' residence, that at no time has our Society been doing better work than at the present time when mostly officered by young men. The Secretary of the Woodstock Society stated that he has known of grain being shown year after year receiving the prize. Why not adopt the system that we have? The prize grain is sold at the annual meeting by auction, and the proceeds used for some good purpose; by that means you not only obviate any fraud but you are doing a good work at the same time.

D. LOYNAHAN: With reference to our Superintendent's report, he spoke about plowing matches. I am not very well posted with regard to the grant that we get from the Government. Do we have to take a portion of this for our plowing matches, or is this a separate thing?

J. LOCKIE WILSON: If the Agricultural Society holds a plowing match, any sums expended in prizes can be counted in as expenditure for agricultural purposes on which the regular grant is based. If their members wish to form a branch of the Ontario Plowmen's Association, they can do so and receive their share of the Government grant to that Association. The membership must be at least twenty-five.

D. LOYNAHAN: I think the plowing match should be encouraged. Good plowing has almost become a lost art in a great many places, and I think good plowing is the foundation of success. I would like to have it encouraged in our Society, and it was discussed at our annual meeting and I was asked to bring it up here and I will go back, and I think next year we will have a plowing match.

At our Society's meeting, I put up a big fight there in regard to our old directors. We had a number of very old men. They had really served the Agricultural Society very well, and it seemed a little bit unfair to turn them down without any recompense whatever, and I proposed that we elect them honorary directors. Then we had five or six new ones that we put on last year and tried them out, and four of the six proved to be useless. I think it is a mistake for any Agricultural Board to elect a whole lot of gray whiskered men like myself. Put the younger men in with a few of the older ones to keep them steady.

I am proud to say that we have one of the best agricultural fairs in Williams-town that is in the Province, for both stock, cattle and horses, and I have been pretty much over the fairs of the Province of Ontario. We have no horse races and we won't allow it. Last year was our banner year. We give the people there an exhibition of the products of the soil and we have a large crowd. We took in last year \$300 more than ever before, and we are bound to increase it every year.

F. J. EATON: I want to ask a question for my own information. Last year, in regard to this field crop competition, we sent in the names of thirteen competitors. When we got our return from the Superintendent there were only ten names on the list. The other three fellows felt very sore. I want to know if this was regular or was it an oversight, that these three names were not on the list when the judge came.

J. LOCKIE WILSON: When the names are sent in to us by your secretary we certainly did not cut off any of them. Thirteen entries were made in oats and thirteen fields judged and the scores are on file in my office.

J. J. HUNTER: Some of the delegates have been speaking about attractions at fairs. I believe that to a limited extent they have their place. Societies last year which had a military display claimed that the public was much interested. We breed heavy horses as well as lighter speedier ones and trials of speed are attractive.



Leading the Procession at Picton Fair.

Mr. Wilson referred to a director getting his badge on. I have known them to act as he stated, but they are always on hand for their dinner tickets. Our Society has dropped a number of useless ones.

A. F. ALLAN: The matter of attractions at fairs has been discussed this afternoon. I have a son at the war, I am proud to say, and I had a letter from him, and he said, "Dad, I wish you would keep the mare in good condition. If the war is over next fall I will be home, and I would like to enter her out at the fair."

NEIL MCDUGALD: It seems to me that there is a lot of discussion on this entertainment at the fairs. We have had that for years and years. Every time this is brought up time is taken up, and we don't seem to be making any progress along this line. It is impossible for us to agree on this question, and it should be dropped and let every fair entertain their people as they think best, provided that they keep within the law.

JAMES GARDHOUSE: At Weston we have a school day there and a two day fair. The first day is entirely for the children's fair. We have about 2,500 children there. It is one of the grandest sights and it is the most popular day we have at the fair. We have a good show of stock and trials of speed.

R. BRIGHAM: In our Society we get the directors when appointed to choose sides. The President and Vice-President are put on as captains and get to work and they appoint about six or eight on each side. These canvass and the two who get the most members into the Society are the men who represent the Society at this Convention here the next year. One canvasser got seventy members last year, and you can get almost every farmer in the community in that way.

R. POWERS: In regard to the Field Crop Competitions in our neighborhood there are some large farmers who have 200 or 300 acres, and the fields run from 25 to 30 acres. Is it fair that they should prepare a 30-acre field of oats and be placed on an equality with the farmer who has a 5-acre field? How can you get over it?

WM. SCARF: Cut a swath around five acres.

J. LOCKIE WILSON: In Northern Ontario the minimum acreage is three acres, in Old Ontario, five. You may have as many as you like, but five acres is the minimum acreage. But there is no strict regulation as to whether it should be staked or a swath.

R. J. BUSHELL: This subject has been pretty well gone into and there has been valuable information given. I represent the Kingston Industrial. We increased our receipts by 400 per cent., and had a surplus. We attribute our success largely to advertising. If you are going to do advertising, you must use discretion for the benefit of the small fairs or small communities. I would suggest that it would give them some publicity by having a letterhead with a picture of a sheaf of wheat or something of that nature on the top, and giving the names of your fair on the outside of your envelope with the dates of it and send that circular around the district.

For the larger ones, go to the newspapers. At our fair I found by the auditor's report that we had spent \$70 in previous years. This year I spent over \$600 and had an increase of 400 per cent. in revenue as above stated.

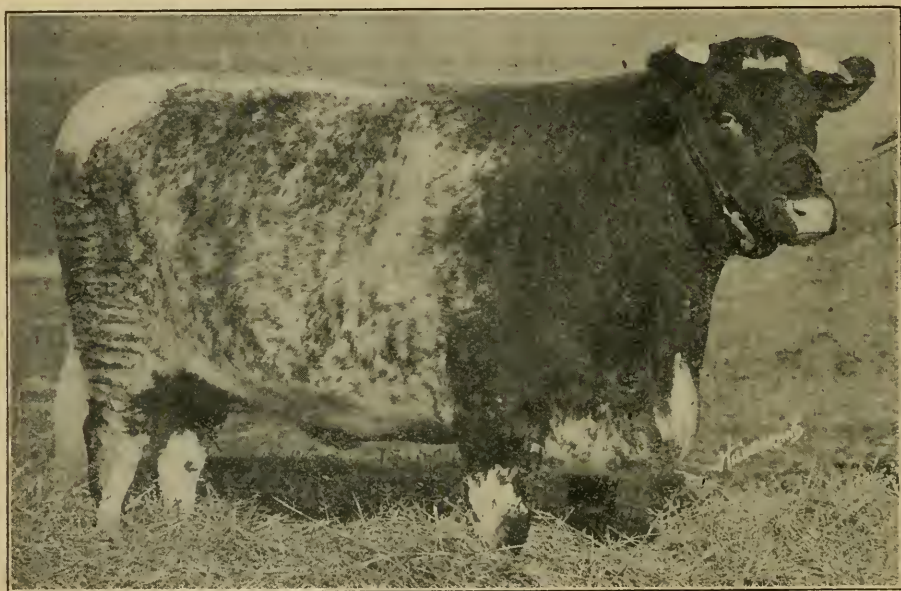
The speaker here distributed some of his programmes which were neatly arranged.

SHORT COURSES FOR LIVE STOCK JUDGES.

E. S. ARCHIBALD, OTTAWA.

The value of short courses for live stock judges is a subject which you appreciate fully as well as I do. No class of farm produce, nothing about the farm is so highly organized, is so absolutely essential to the well-being of agriculture as the live stock. Nothing bears such a relationship toward the influence of the young man to the farm as the live stock. Nothing is as interesting, as instructive, nothing requires as intelligent study, nothing requires as much capital to invest, and nothing allows a greater success financially and otherwise than live stock on the farm. I do not need to enlarge on that. You appreciate that the live stock industry is the backbone of the country. Your field crops are grown for the live stock largely.

Now what are we doing towards furthering the interests of the live stock line, what are the fairs of this Province, what are we doing along that line? Let me just present the farmers' viewpoint to you. I have been an exhibitor for many years as well as a judge. The majority of men, even of the older exhibitors, when they go home from the fair have some impression like this: If they did not win, something was wrong with the judge. If they won, the judge was all right; if a neighbor won over them there is constant jealousy. Is that right? Can we not educate the farmers out of that most erroneous idea, or is our system of appointing judges so faulty that we are stimulating that very idea. The young men who come out to our exhibitions for the first time with their live stock, are they made to feel that they are getting just as good a show as the older exhibitors, who have a reputation already made? Are we in appointing our judges and in training them stimulating the confidence of the young man who is just coming out as



Prize Winner at Chicago International. Owned by A. Gordon Auld, Guelph.

an exhibitor and who in ten or fifteen years from now will be one of our best exhibitors in that district? Are we handling him in the most judicious manner? I think not. And I really think that the solution of the whole problem is the exhibition of our best live stock at our fairs. The purpose of the judge when he goes into the ring is not to distribute so much prize money. Unfortunately the majority of judges consider that as practically the whole burden of the day's work. The purpose of the judge is to so educate the exhibitors that our live stock next year may come out in better condition, or that their breeding operations may be more successful or profitable than in previous years. If the exhibitor persists in the same type of horse, and if the judge has not either corrected that type, or pointed out to him that that is not the best commercial animal, then it is the fault of the judge fully as much as the exhibitor. I am sorry to say that the lack of uniformity of live stock judges throughout the average fairs of the Province of Ontario is responsible for lack of confidence in intelligent judging of live stock.

It is responsible for a great deal of dissatisfaction, and we are wasting time when we might be making more rapid strides. I followed the work of judges at the large and small fairs for a number of years. I have been an exhibitor. I have also had the privilege of acting as judge at many of the larger fairs, and I have come to this conclusion, that if the live stock judge will conscientiously do everything in his power to educate the exhibitor, to help him along and pay particular attention to the young man, he will be the greatest factor in the whole show.

Now this lack of uniformity of judges can be very largely eradicated by the carrying on of good live stock judges' short courses which you have had for several years, 1916 excepted. I think the move of the Government behind you in following up this system of short courses for live stock judges is by far the best. Not only are you going to get uniformity of judging from fair to fair with the same class of live stock, not only are you going to give the young man a better chance, not only are you going to correct misconceptions of unsoundness, unprofitableness in market, but you are going to stimulate uniform quality in production. More than that, these short courses are going to eliminate an all too high percentage of judges who are not capable of judging at our fairs. That is not altogether due to the shortcoming, to the lack of training or intelligence of the judge, but it is very often due to the fact that a judge of beef cattle is erroneously sent out to judge a few beef cattle and in many cases the dairy cattle predominate in numbers, and the same thing may apply to breeds. A judge of Holsteins may or may not be a judge of Ayrshires, but the chances are that he will not be a very good judge of that breed. But the uniform standard which a judge gets in a short course will go far toward establishing a man's confidence in judging or will give him sufficient honesty to say that he is not capable. If more of our live stock judges had more confidence in themselves and more honesty toward themselves and toward the exhibitor it would be better for all concerned. These are the facts as I see them. Our live stock judges have not the confidence, because they think it is a good deal a case of luck, for I have heard them say, "One never can tell where the lightning will strike." And it is up to us to so educate our judges that their judgment may be along proper commercial lines and uniform, and when the exhibitor sees that then they will have confidence in us, and they will change their type and improve them in most cases I trust. I would say that judges' courses, by the exchange of ideas, not only standardize judgment, but they give the judges a better conception of type for work in the various districts. They standardize the various breeds or classes of stock. Live stock judges through these short courses will become better acquainted with the rules and regulations of live stock. For example, how many live stock judges doing the work at our fall fairs have a conception of what the general purpose horse is? From the judges at the fall fairs during the last two years I got at least ten different conceptions of the general purpose horse of this Province. Is that fair to the horse industry of the Province? That will be corrected. A good judge must know his breed himself, know the proper condition in which an animal should be kept for commercial work, and possibly there is a difference for show condition. For example, in dairy cattle, the good judge knows that an animal in order to do its best work during the year must be in good condition, not overloaded with fat, but well prepared. Is that not just the ideal show shape we are after? And yet it is the most ideal commercial condition. A pound of meal before the cow freshens is worth more than three pounds of meal after. If only they could realize it, there are many things along that one particular line in which a good judge can help the exhibitor, except, perhaps, a few of our best exhibitors whom we rarely see at the average county show. We can do a great

deal towards educating the young man and in many cases the older exhibitor along the line of feeding and breeding of all classes of live stock. Then I think it is a wise practice of the average judge to throw out a few hints to the exhibitors as to general methods of feeding and showing. For example, the same young man may come into the ring two and three years in succession and yet never realize that his neighbors were putting a little extra polish on the animals. I have again seen many young exhibitors of sheep who never quite appreciate the value of proper trimming, making the most of the animal. There is an opportunity for every judge who knows live stock to help along the young exhibitor, both in the show ring and in the commercial end of it. Then again there is a splendid opportunity for the good judge to assist the farmer in getting better breeding stock by knowing where it is, using better breeding methods to demonstrate beyond a doubt that only the very best pure bred sires should be used, and that a farmer by using anything which is not pure bred or which is poor pure bred may be losing thousands of dollars on a comparatively small farm. We have this splendid opportunity of throwing out a few hints, but it certainly would be well that we standardize our ideas, that we know that our hints are not purely personal factors, but are founded on facts. I honestly believe that a week's congress of the live stock judges should be held at the Ontario Agricultural College, Guelph, or the Central Experimental Farm, Ottawa, or any place where sufficient experiments are being conducted and information of all kinds is available. Those are the places where the live stock short courses for judges should be conducted annually. I know I am not, perhaps, very explicit in pointing out what I want to, but I do not think we can over-emphasize the importance of sending only the very best judges, freshly stimulated, knowing the other man's ideas and ideals and sending them out with the determination that they are going to help the live stock industry and are going to lay particular stress in assisting the young exhibitor to breed better stock and make more money, to feed commercially better, have himself and his animals in better show shape, and above all to house his animals in such a way that he may eliminate the deleterious effects of infectious diseases.

We lose millions of dollars in dairy cattle alone, and more, we are wasting added millions in not feeding and breeding as we should. We as live stock judges have the greatest opportunity of carrying on educational work, and I cannot over-emphasize the absolute necessity and the benefit to us all in having these short courses at least once a year.

J. E. MONTGOMERY: What is a general purpose horse?

E. S. ARCHIBALD: The definition of a general purpose horse and a whole lot of other similar points are contested ones. Even our very best judges are apt to disagree to a certain extent, although they come to a general fairly definite understanding. By the general purpose horse is understood by our best horsemen and our best judges and authorities on horse flesh one which can be used for all purposes. A definition given by one judge of exceedingly good reputation is that it is a horse which can be used in the carriage, or in the buggy, is useful for express purposes, can be ridden if necessary, and can be used for light draft or to take the place, to a certain extent, of heavier draft horses on a farm. Now that naturally means that a horse, if he is to be used for all these purposes, might be a light Clydesdale or a light Percheron. In my opinion it is a horse which conforms more nearly to the express type of horse. If that is the conclusion arrived at by our best judges, then it is certainly well that we should all have about the same conception at least.

A MEMBER: What is the weight?

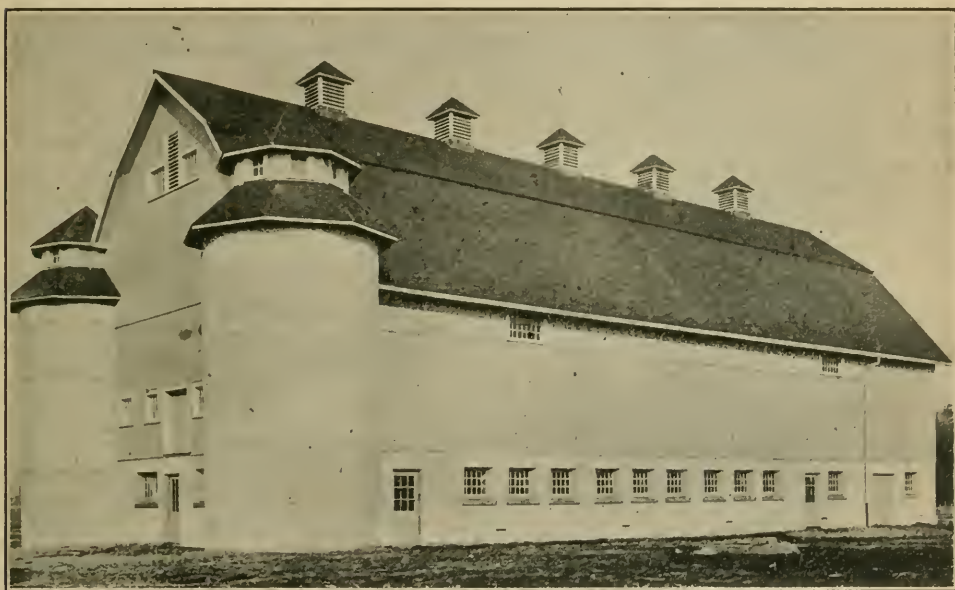
E. S. ARCHIBALD: There is more discussion as to the weight than anything else, but I would say that a general purpose horse should run somewhere between 1,100 and 1,350 lbs. Any weights between those limits are recognized by our best judges.

A MEMBER: What height should they be?

E. S. ARCHIBALD: There is quite a variation there; but I would say 15½ to 16 hands.

DAVID EVANS: I have with pleasure listened to the remarks of Prof. Archibald, but I was rather surprised when I listened to his definition of what a general purpose horse should be. He gave the definition something of the type of an express horse. I call to my mind something of the carriage type.

GEO. DOWNEY: There are three points in a discussion that we usually take up, the first is, we emphasize what the speaker has already said, the second, you



Good type of barn and silos. Owned by Col. D. M. Robertson, Williamstown, Ont.

may take exception to something he has said, and thirdly, we add something to what has already been said.

In the first place I would like to emphasize that uniformity of judgment which Mr. Archibald laid such stress on. Uniformity is the most important feature in the short courses for judges. As a judge of cattle and sheep, I find my most difficult point to contend with is the mixing of type. In these short courses it seems to me that the uniformity of type is the most important point if we are going to educate the people along that line. The young man learns from the older one; the timid one learns in these places to give his reasons. Many a good judge in this country can place a class of cattle or sheep properly, but he cannot give his reasons for it—that is in a way that people can understand. He might know why he put a certain animal up first, but it might be difficult for many to make it plain why he did it.

In regard to Field Crop Competitions I think they are a very important thing in this country and they have improved our crops very much. The value

of the short course for the Field Crop Judges will also come under that same line of uniformity of judgment. They get together and they discuss the value or the opposite of certain kinds of wheat or other grain. One man considers wild oats the worst weed, another one holds a different opinion.

THE BENEFITS OF SHORT COURSES FOR FIELD CROP JUDGES.

PROF. W. J. SQUIRRELL, GUELPH.

The first short course for field crop judges was held in 1908. Since that date short courses have been held at both Guelph and at Ottawa. In the past three years the Western Ontario field crop judges met at Guelph and the Eastern Ontario field crop judges at Ottawa. This work had its inception owing to the necessity of training men, who were largely inexperienced, for the work of field crop judging.

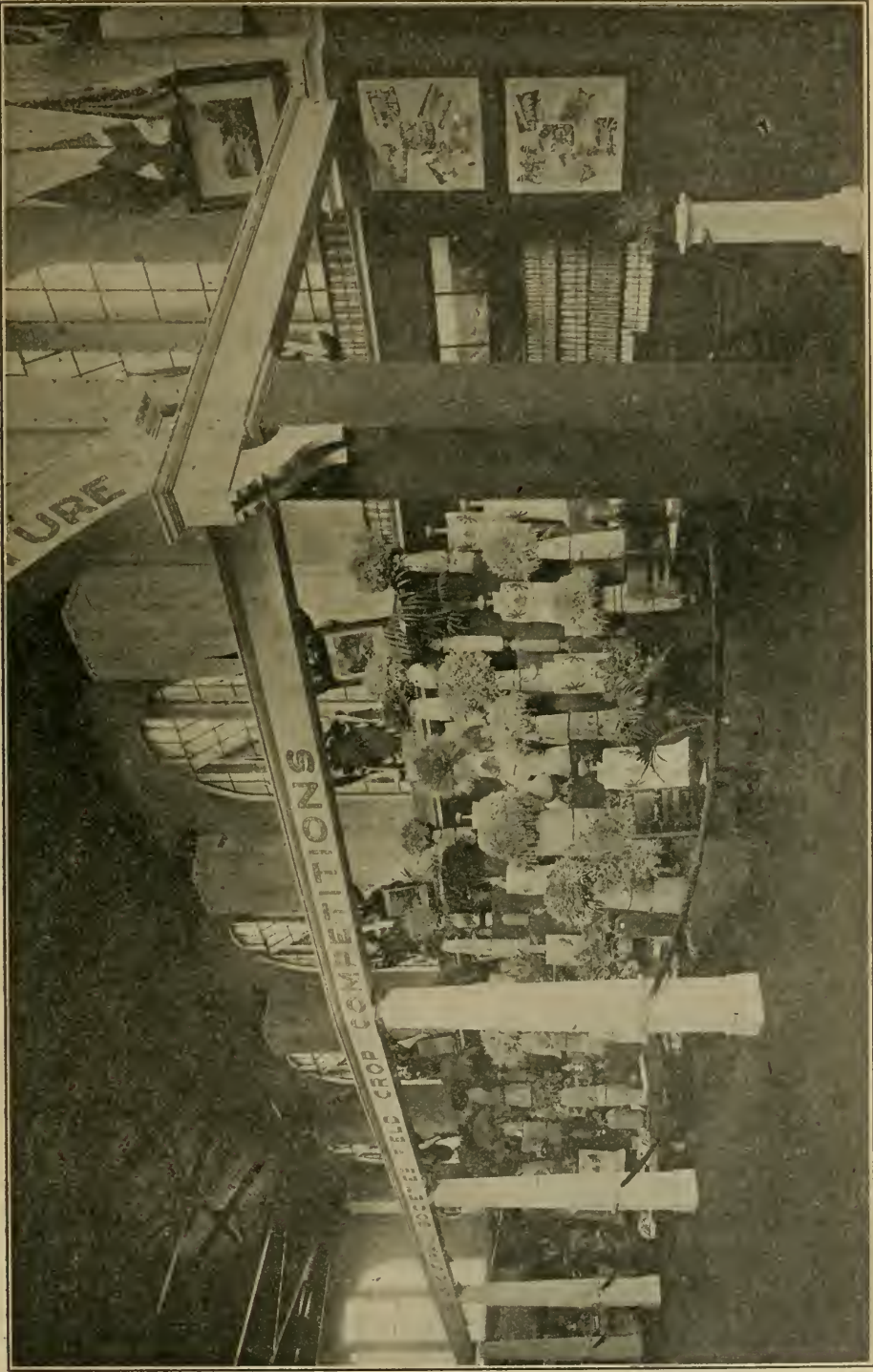
The short courses which have been held have been well attended by the judges and keen interest taken in the various subjects discussed. The holding of these courses and the discussions arising from the subjects considered has increased the knowledge of judges in many lines pertaining to their business. They have been largely instrumental in forming the rules of the organization as they now exist, as many changes for the better in the rules were suggested during these courses.

The general method of field survey used in the judging of the fields in competition was adopted during these sessions. This has resulted in a uniformity in the method of judging which probably never would have been obtained otherwise.

One of the most important phases of the short course work has been the discussion with the class of the meaning of each of the individual points included in the score cards and to see that each judge clearly understands the definition of the different points considered. This has been followed by an endeavour in actual field demonstration to get as great uniformity as possible in the judging. That is to see that each judge, not only has the same understanding of what he is looking for, but, as far as possible, arrives at the same valuation of these different points in his judging. This procedure has not only reviewed the work with the older judges but has brought into line the men who are judging for the first time. These new men not only are able to take advantage of the instruction given, but also benefit from the discussions of the older judges.

Many farmers who buy seed are influenced in their selection by the total score which the field has obtained in competition. It is, therefore, very necessary that all judges have the same training and, as far as possible, put the same valuation on the individual points which make up this total score.

At these short courses considerable time has been devoted to the study of weeds and weed seeds. Each judge is given an opportunity to see samples of the noxious weeds and weed seeds and information as to their relative harmfulness and the best methods of eradicating them. The good influence of this phase of the short course work may readily be seen by a reference to the reports of the Field Crop Competitions. In the first of these reports very few weeds are mentioned as being found in the fields judged, largely due to the fact that judges at that time did not know much about weeds and weed seeds. In later reports, because of the judges' greater knowledge of the subject, many weeds are mentioned as being found in the fields judged. Thus the judge is not only able to make an accurate report on the question of purity and enable men who buy this seed to see just what it contains, but he is in a position to tell the farmer what impurities are in his crop and to suggest how he can best get rid of them.



East view of Field Crop Exhibit, C.N.E.

As much time as possible during these courses is spent in studying different variety characteristics. No better places can be found for this phase of the work than at the experiment stations at Guelph and Ottawa. At both of these institutions all of the most commonly grown varieties in Ontario and many varieties not so well known are to be found growing side by side under uniform conditions. This gives the judge an excellent chance not only to observe the characteristics of the different varieties, but also to make a note of what differences may exist between certain varieties. At these experiment stations it is possible to find early maturing varieties of different classes of crops sufficiently ripe to judge before the men commence the work of the year. These conditions it would be impossible to find at any other place in Ontario.

As an illustration of how the standard of material judged has improved I would like to cite the instance of the oat crop. In the first two years in which prize grain from the Field Crop Competitions was exhibited at Guelph, Toronto and Ottawa, many of these entries were found to contain small numbers of wild oats. In the last three years not a single wild oat has been found in the oat entries or in any other entry shown in the Field Crop Competitions at these places.

It is safe to say that much of the good work which field crop judges have accomplished throughout Ontario has been due to the information and inspiration which they have obtained at these short courses. The short course, I think, may also justly claim a fair share of the credit for the confidence which the public has to-day in these Field Crop Competitions. Men who have acted as field crop judges since the beginning of these competitions know that this confidence did not exist in the same degree in the early days of the organization. Annual reports of the Field Crop Competitions, while, perhaps, subject to improvement, provide a good source of seed supply.

In closing, I would like to say that the more uniformity and system we can introduce into this work, the greater is the impression as to its value that we are going to leave with the farmer on whose farm the judging takes place and on the man who sees the work but who has not yet become a competitor. The judge who attends these courses has obtained a greater knowledge of agriculture in general and of judging in particular, and, if he applies the lessons learned, he is going to make the farmer whose field he judges a better farmer; the neighbors who see his work, better farmers; and himself, a better farmer.

BIRDS IN RELATION TO AGRICULTURE.

W. HARVEY MCNAIRN, PH.D., TORONTO.

In times like these when our thoughts are being turned towards high and heroic aspirations, and when on this very evening our gallant young men are maintaining their unsleeping watch in the trenches of far-off France and Flanders, standing as a living wall between us and our implacable foe, why should I ask you to listen to me while I talk about birds? I fear it may seem to you to be a very commonplace matter, and yet, in reality it is most appropriate that we should consider at this time all methods by means of which the agricultural production of the country may be increased. If we cannot go to fight, we must make our support of the deathless Canadian army as efficient as in us lies. This then is my excuse for reminding you of the great service which birds can render to agriculture.

All of us, then, have our duties and responsibilities in these great days when

a new world is being born, but upon none of us do they rest more heavily than upon the farmers. Theirs it is to produce clothing and food, not only for the men of our own armies, but for that sad company, the victims of rapacious cruelty, who are naked and appeal to us to clothe them, an hungered, and stretch out their emaciated hands to us for bread. To meet all these demands every field must produce its maximum, every orchard its finest fruit. It is our belief that in accomplishing this we shall find the co-operation of the birds a help of the utmost value. This is what I want to demonstrate to you this evening, and also to show how this assistance may be most effectively secured in this phase of the endless warfare which is necessary if man is to maintain the position he holds in nature.

This position was attained only after age long struggle, and as it is held by the insecure right of conquest, it calls for unceasing vigilance. For man has destroyed the balance of nature. Before he came the plant-eating animals tended to keep down the luxuriance of vegetation; carnivorous animals reduced the numbers of the plant eaters, and were, in turn, kept down to reasonable numbers by their own killing off of their prey. Now, all has been changed. Man has almost succeeded in exterminating the wild animals. He has himself become unnecessarily abundant, and he has enormously increased the numbers of the plants belonging to certain families, such as the grains, and of mammals belonging to certain families, such as the cattle. Since the balance has been upset, the whole remains in a condition of unstable equilibrium. Let him neglect the use of insecticides and precautionary methods, and the green bug blasts his wheat, and the Colorado beetle destroys his potatoes. Let him once relax his enforcement of the sanitary laws, and those invisible hosts which cause the pestilences—typhoid, smallpox, cholera—fall upon him, and thousands are carried out to untimely graves.

And so it has become necessary to take advantage of all the assistance that science can offer. Committees of Conservation and Commissions of Industrial Research are appointed. The farming community is circularized with leaflets containing information about insect pests and the insecticides to be used in combatting them. For the enemies of mankind are innumerable, their attack insidious, and agriculture consists in no small measure of a knowledge of the scientific means by which the advancing hordes may be kept at bay.

In this warfare the farmer has to meet the attack of three arms of the enemy's forces. When he plants his seed and the tender shoots appear the weeds spring up and choke them. If the plants grow there are myriads of insects waiting to devour them. If the harvest is reaped and the golden grain stored in his barns, then come the swarms of rats and mice to destroy what he has saved of the fruits of his labor. In the face of these attacks no more effective allies are available than the birds. If they had nothing else to recommend them their usefulness would merit our protection, but this is only part of their claim upon us. They are among the most beautiful of all created things. Their instincts are wonderful beyond our comprehension. In their characters they are frequently innocent, amiable and affectionate, and in addition, many of them possess the faculty of producing music of the most entrancing kind.

"Do you ne'er think what wondrous beings these?

Do you ne'er think who made them, and who taught

The dialect they speak, where melodies

Alone are the interpreters of thought?

Whose household words are songs in many keys

Sweeter than instrument of man e'er caught."—*Longfellow.*

I propose then to introduce you to a few of our friends in feathers, telling you in each case some of the facts which ornithology has brought to light about their diet, and the consequent value they are to us. This information, it should be remembered, is not the result of any haphazard observation, but is deduced from the tabulated statement of the contents of the stomachs of the birds, and as the numbers in practically every case run up in the hundreds, the data is quite sufficient for generalization.



Sparrow Hawk.

I.—BIRDS THAT DESTROY MICE AND OTHER VERMIN.

THE SPARROW HAWK.—Here he stands, silent, motionless, alert; a fine mark for the small boy's 22 rifle, and too often a martyr to his markmanship. Suddenly, a dash into the air, a swoop down, and he returns with his prey—not a turkey nor a

fat hen, but a field mouse, a frog or a grasshopper. The food of this handsome little hawk is composed entirely of the pests of the farm, and he should enjoy the fullest protection.

But everybody knows that there are hawks that do eat our chickens, and one of the commonest is Cooper's Hawk. He is active and voracious, and by his success as a hunter, has helped to bring the whole family into disrepute. His slightly smaller cousin, the Sharp-Shinned Hawk, is very similar in appearance, and I am sorry to say, in disposition also. These are the commonest species of injurious hawks. A few others of rare occurrence may occasionally pay a visit to the poultry-yard, and under these circumstances a good shotgun is a very desirable friend to have, but the killing should not be indiscriminate, for the miscreant may be the family cat, and the large bird that sails so gracefully over the meadows, and which is familiarly known as the "hen hawk," may be killed on account of his opprobrious name, although an innocent and useful species. The three birds to which this name of "hen hawk" is applied—broad-winged hawk, rough-legged hawk, and red-shouldered hawk, have a diet very similar to that of the sparrow hawk.

What is so grave, so wise, so imperturbable as an owl? By day he is awkward and sluggish, but at night as silent, as swift, as inescapable as a nemesis; and his victims are our enemies, rats, mice, insects. The Long-Eared Owl, with this sort of a record behind him, merits our interest and our protection.

The same remarks apply almost equally to his close relative, the Short-Eared Owl, the most numerous of the family. He has the bad habit, however, of occasionally turning his attention to small birds when his larder needs replenishing. There is no question but that all our owls, with the exception of the great-horned owl, are of the greatest value, killing field mice, moles and rats in large numbers. They attack our foes at night when they are otherwise free from molestation, and when most of their depredations are committed.

II.—BIRDS WHOSE MAIN DIET IS INSECTS.

The smaller hawks and owls, as has been indicated, eat many insects, but the greatest work of this kind is done by the numerous insectivorous birds. On the ground among the furrows, on the trunks and branches of the trees, among the foliage and in the air, all day long they labor incessantly for their subsistence, and in the breeding season, for the subsistence of their young also. As an adult bird requires its own weight in insects per day, it will be realized that this is by no means a light task.

One of our most troublesome pests is the cut worm, and the Meadow Lark has been provided with a long, powerful bill for prodding, an unerring instinct for locating and a voracious appetite. However he may vary his diet, it never includes grain. A study of 1,514 stomachs by the American Department of Agriculture, showed that 75 per cent. of the contents were of animal origin and 25 per cent. vegetable, practically all wild berries and weed seeds.

The pugnacious predacious and loquacious blackbird, or to give him his proper name, Bronzed Grackle, must be here included in good company, among the destroyers of cutworms, beetles and grubs that infest our fields. For once we see him as a benefactor, but he is to be given little credit on that score, for he largely overdraws his bank account with cherries and corn and other things we want to eat ourselves. His coat is handsome, but his habits are bad.

Among the birds whose main source of food supply is found on the ground, there are few that combine usefulness, grace and musical ability to so great an extent as the thrushes. The Wood Thrush and its rather better known relative the veery or Wilson's Thrush, whose diet is almost entirely composed of insects, carry out the good work in woodlands and thickets where meadow larks and other birds do not venture.



Red-headed Woodpecker.

All winter long our feathered friends run up and down the trunks and branches of our trees, pulling out the chrysalids from below the sheltering bark scales, picking the minute eggs from cranny and crevice, and charming us with their friendly ways and cheerful voices. None of them is better known or better beloved than the Chickadee.

The larvæ that lie deeper are tugged out by the powerful, chisel-like bill of the woodpecker. One of the most common and most brilliant of them is the Redheaded Woodpecker, who has developed a liking for fruit which has somewhat put him on our bad books. Among the items on his bill of fare that we most gladly grant him, are the chrysalids of the codling moth, one of the arch enemies of the fruitgrower. It has been calculated by the American Department of Agriculture, that in that country an annual loss of \$12,000,000 is wrought by this insect, notwithstanding an amount of \$8,000,000 which is expended upon insecticides and labor and machinery to kill him off, a total of \$20,000,000 every year. His success is due to the care with which he covers up his tracks. He flies only under cover of the darkness, and hides his chrysalis under bark scales or beneath litter on the ground. Our best natural assistance in this colossal task of preserving our orchards comes from the birds.

The downy and hairy woodpeckers stay with us all winter, as do also the chickadee, nuthatches and the tree creeper. The service they render is very great, and we can attract them to our orchards by supplying them with a little food that they can turn to for variety. A bone with some fat on it hung up in some convenient place is appreciated, but the best kind is made specially for them by mixing bread crumbs, oats, hemp seed and dried meat with melted fat. This mixture may be poured hot upon evergreen branches which are then hung up for the birds to help themselves. It is found that this certain supply does not in the slightest interfere with their activity in hunting for their regular diet of insects, but that it attracts and retains numbers of birds that otherwise would spend but a passing call.

With the time of unfolding leaves come the caterpillars. Once let them get out of control, and they will soon strip all foliage, leaving nothing but bare branches. If birds were more numerous in the city we would be saved a considerable percentage of the cost of spraying the trees and scraping the trunks and branches each year. Among the caterpillar eaters is the Cuckoo, a bird so shy and retiring that Wordsworth says:

"O blythe new comer, I have heard,
I hear thee and rejoice.
O cuckoo, shall I call thee bird,
Or but a wandering voice?"

Everyone has heard of the reprehensible habits of the bird that the poet is here celebrating, but I am glad to say that our cuckoo is a much better bird, and not averse to the duties of home making.

Always welcome for his gorgeous plumage, for his clear, musical voice, for his vivacious manners and the wonder of his pensile nest, is the Baltimore Oriole. He, too, likes caterpillars, and, ornithologists tell us, his visits to our cherry trees have these as their object rather than fruit.

Among the birds that hunt their prey in the air, none is more active or more pugnacious than the Kingbird. His attacks upon any wandering crow or hawk that may venture near his domain are among the most interesting sights of the countryside. Although his temper may not be amiable, his deeds are beneficial, for his food is almost entirely insects.

A relative of his, equally useful, but of far greater refinement of manner, is the sad-voiced Wood Pewee, which is becoming one of our commonest of birds.

To the help we derive from them, must be added the work of the swallows, in catching small flies, gnats and mosquitoes, a labor in which they are aided by the whip-poor-will, of whom Marie Le Baron sings:

"Where deep and misty shadows float,
In forest's depths is heard thy note.
Like a lost spirit, earthbound still
Art thou, mysterious whip-poor-will."

There is nothing, however, mysterious about his relative the Nighthawk, which is, of course, not a hawk at all. We all know this common bird whose quick, erratic flight, hoarse voice and extraordinary boom as it swoops down on its prey, attract one's attention any summer evening.



Short-eared Owl.

III.—BIRDS THAT EAT WEED SEEDS.

In addition to those birds whose main food is insects, we have another group that does an immense amount of good by eating weed seeds, though it must be remembered that even the so-called graminivorous birds feed their young with insects. Some of these seed eaters spend the summer with us, some the winter, and others spring and fall, but all devour their quota of seeds of noxious plants.

Among our summer birds which should be noted in this connection are the American Goldfinch, the Song Sparrow and the Chipping Sparrow, all very numerous and very useful. In the winter come the Junco or black snow bird, and the Snowflake and the Tree Sparrow, picking up their subsistence from the seeds of the dried weed stalks standing up above the snow. Thus the work is carried out during all seasons.

It is not claimed that under the most favorable circumstances birds would entirely exterminate all noxious insects or plants—that would mean the destruction of their own food supply—but when properly protected and encouraged, they are undoubtedly able to reduce the numbers of these insect hosts to such an extent that they may be kept well in hand. A very striking example of this was observed in a certain locality in Europe some ten years ago. There is in that place a great area devoted to forests, and on that year a great plague of caterpillars completely stripped the leaves from the trees, excepting in the neighborhood of an estate of about 500 acres which had been retained as a bird sanctuary, and this mass of green foliage stood out like an oasis amid the desert of leafless trees.

Such co-operation is surely worth having, and it is offered to us on easy terms. The main thing our friends require is protection. If we plant thickets of white thorn where they may build their nests and rear their young, away from prying and hungry cats; if we hang up boxes of approved forms such as are to be obtained from the Society for the Protection of Birds, whose headquarters are in Toronto; if we plant shrubs that produce berries such as the Tartarian honeysuckle, the mountain ash, the cranberry or snowball; if we grow a little hemp for the seed eaters, we may be sure of having the birds with us all the year round, cheering us by their happy dispositions, and aiding us in our struggle for daily bread.

If we do but get back to nature and enjoy the companionship of birds, we begin to realize why it is that they meant so much to our remote forefathers. To them our feathered brothers were looked upon as the embodiment of beauty and happiness. From their quick motions came the image of the flight of time. The raven supplied the concrete idea of the fierce joy of battle. The dove suggested the peace of home life. From the soaring flight of the bird came the earliest conception of the passage of the soul, and when they thought of the holy angels they gave them the graceful wings and the power of flight which were the most marvelous and envied qualities of the birds.

“Beautiful creatures of freedom and light,
Oh where is the eye that groweth not bright
As it watches you trimming your soft, glossy coats,
Swelling your bosoms and ruffling your throats.
Birds, birds, ye are beautiful things,
With your earth treading feet and your cloud cleaving wings.
—Eliza Cook.

A CAUSE WORTH FIGHTING FOR.

REV. CANON CODY, TORONTO.

The subject of war is one so absolutely inexhaustible, so close to the hearts of all of us, that it is not difficult to speak at length upon it.

There has recently been issued to us from our Government a call to national service, and this call comes to us with special insistence at the present time. We



Black-billed Cuckoo.

all feel that more or less the great world conflict is drawing nearer to a crisis and a climax. It has been possible in England to describe the loan now being floated as the Victory Loan. It is the profound hope and belief of the men at the front that before the snow flies again in this year, victory will crown our efforts. As the struggle nears the crisis and climax, the necessity of putting forth every possible effort is simply accentuated at this stage of things. As Lord Grey said, some time ago, "Let us re-state our case." We all to-day are fully agreed that the war was necessary and a righteous war. We could not have avoided it in honor, not only was national honor at stake, not only was our friendship to our Ally, France, involved, but the very existence of the British empire was trembling in the balance. At that time we did not fully realize it, but to-day we do realize that even yet the whole existence of our Empire and all which it stands for are really at stake. Had it come to pass that Britain had stayed out of the struggle, then beyond all shadow of doubt the enemy would have swept down to the English channel and secured the whole northern seaboard as far as Havre, that would have provided him with great river mouths and estuaries, with great bases for his submarines and zeppelins. It would have been impossible for Britain to maintain her control of the English channel. That in turn would have threatened her continued freedom. If, therefore, the British Empire at its heart was to remain safe and free, the British Empire could not afford to allow the whole seaboard of the North Sea from Denmark to LeHavre to pass into the hands of the enemy. It was necessary and right that we should be involved in this struggle. We could not have avoided it if we would in honor, and had we sought to avoid it, we could have done so only with dishonor to ourselves and danger to our whole national existence.

In the second place, we have realized that this struggle was perhaps against the most formidable foe we have ever faced in all the course of our national history. This foe utilized all the resources of dishonesty, intrigue and science, absolutely untrammelled by any moral considerations whatsoever. When two men are engaged in a fight and one keeps the rules of the fight and the other does not, the one who keeps the rules for the time being may be at a disadvantage. We are in this struggle to-day engaged against an opponent who has thrown overboard all humanitarian restraints in the conduct of war, every moral consideration. He is fighting with all the resources of science untrammelled by any moral considerations. He is an enemy, moreover, whose main business in life it was to prepare for war. War was considered to be the most honorable function of any man in the state. The highest caste in the state was the war caste, the whole of German public life, the whole of German industrial and commercial life, was ordered with a view to equipping the nation most perfectly for war, when "the Day" should come. Here then you have an opponent in a compact territory in the very centre of Europe abundantly prepared.

What have you on the other side—France and Russia were obviously unprepared for an immediate struggle. Our navy, thank God, was ready, and it is because of all that the British navy has done that we in Canada and our friends in the United States are safe and enjoying peace and prosperity to-day. I suppose the strongest bulwark of the Monroe doctrine is the navy of Great Britain. We had a small standing army, very small, but that army was perhaps the best trained army in all Europe. That army was ready, that army was in an extraordinarily short time thrown across the English channel. It was able to make its

journey across the English channel because almost before the war had well begun, the navy had bottled up the German fleet and controlled the pathway through the seas to France. This army was highly trained, extremely efficient, was naturally a very small army, and the war had not been in progress very long before we began to realize that Britain must not only be the foremost naval power in the world, but must begin to raise armies on a scale comparable to the scale on which armies were maintained in Europe. To-day possibly 5,000,000 from the Empire are under arms, and Great Britain has not only been the greatest naval power in the world, but is rapidly becoming one of the outstanding military powers in the world. We had to fight an unscrupulous, well-prepared foe, the most formidable foe we ever had faced in all the course of our history.

At first, I believe, it is true to say we did not rightly estimate the power of the enemy. It is always a mistake to underestimate your foe, and I think that at the beginning we did underestimate the foe. We thought the war would be over in a few months, only Lord Kitchener and a few who had carefully studied the situation breathed the words, "Three years," and many thought they were bereft of their senses in so predicting; but so it has turned out. We have discovered to-day that we were against a formidable, marvellously prepared and unspeakably ruthless and unscrupulous enemy.

Then we came to realize, and we realize it more to-day than ever, that this struggle is not simply a struggle of one army against another, or of one group of armies against another group of armies, or of one nation against another or group of nations, but it is a struggle of antagonistic principles, and where there is a struggle of antagonistic principles in the very nature of the case there cannot be a compromise. You cannot really compromise right and wrong, and make a nondescript gray out of the mixture of black and white. It is impossible to have peace without victory when you are dealing with antagonistic principles, and we began to understand that the most vital principles upon which our Empire had been built, upon which the whole higher life of the world depends were involved in this struggle. I will come back presently to that point.

We discovered at an early stage that we were fighting for all those principles that really make civilization, and upon which the higher life of all the nations of the world alone could be built.

Then we came to discover a fourth thing. We discovered that not only was the war absolutely necessary and righteous, that we were against the most formidable foe we had ever faced, that it was a struggle of not only armies and masses, but of principles, but we discovered it would take all our available resources of men and money to win this war. That was a discovery that we slowly made. At the beginning of the war there were two phases that acted like a narcotic or a dose of chloroform, and those two phases were "Business as usual," and "After the war." We had it stuck up as an advertising bulletin in the street cars, "Business as usual." We did not, frankly, recognize in the early stages that nothing was as usual, that nothing could be as usual as long as this great man-eating tiger amongst the nations was loose and powerful and still breathing. We know to-day that nothing matters at present but the winning of the war. That is the supreme task, and we are beginning to order every department of national life, even here in the overseas Dominions, with a view to winning this war. It is vital. On the winning of the war, we humbly believe, depends everything that makes civilization possible and the life of the world desirable.

At length, in the year 1915, well on in that year, the Mother Country thoroughly wakened up. The failure of the offensive in the West at Neuve Chapelle, in the Champagne district, revealed our unpreparedness in the particular kind of guns and munitions needed to meet the war. The distinguished German journalist, Max Harden, made this comment (The Germans always speak of England as England, never as Great Britain), "England is at last awake, and she will sleep no more, unless she sleeps the sleep of death." "She is awake," that was the great characteristic. We know that every resource that we possess as a world-wide Empire must be drawn upon if the victory is to be won.



Song Sparrow.

I ask you to follow with me very briefly the course of this struggle so that you will see the point at which to-day we have arrived. There are three broad stages in the war. The first stage was the stage in which we could only hang on with grim endurance, flesh and blood were pitted against machines of destruction. And never was a more heroic campaign in the whole history of the world than that waged in the first year of the war when Britons and our own Canadians, most of that first contingent being British born, hung on, hung on, pitted flesh and blood against overwhelming weight of German metal and German shells.

The second stage was the stage after Britain wakened up, when gradually we increased in guns and increased in munitions, until there came to be an equilibrium, when the Germans shot shells over and we were able to shoot an equal

number back, and men were no longer compelled to face with their bodies the pitiless rain of metal.

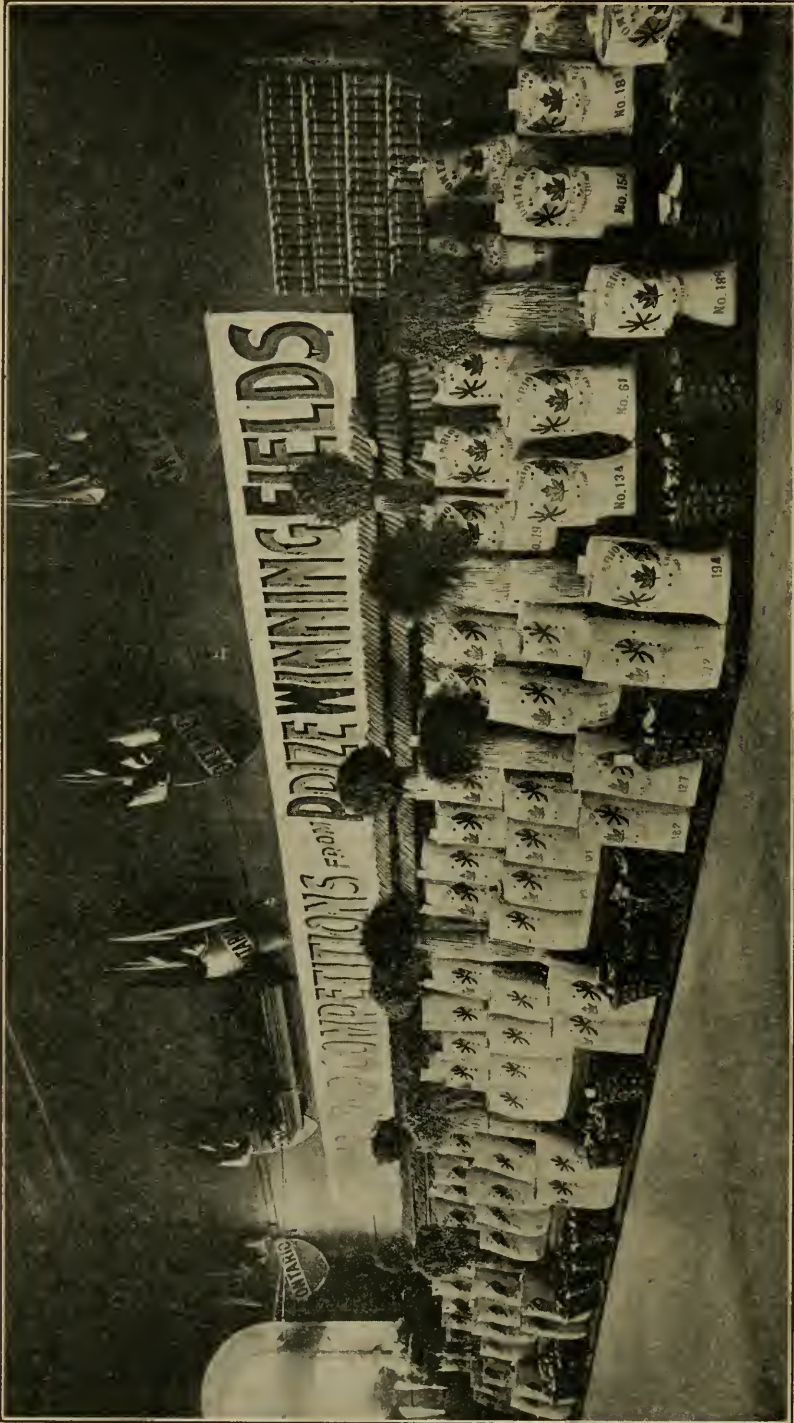
Now we are in the third stage, the stage of undoubted superiority in both guns and munitions. This is the stage that makes us believe that victory is almost in sight, although the price has still to be paid. Now if you will go back in your memories to that first stage, the stage of resistance, of grim endurance, you will remember the outstanding features. Our little British expeditionary force of some 80,000 with about 320 field guns was suddenly landed at the city of Mons, to discover that they were in the very thick of a great battle. The French were on their right, and General French at the time had two German army corps in front of our men. He felt he could easily manage them, although the numbers were vastly greater. The Briton has always imagined that he is equal to two and a half of any other people under the sun. So he would be in a fair fight with his own fists. But when you are fighting with machinery, the circumstance is changed, and you cannot expect the bravest man on earth to be equal to an overwhelming force armed with machines of destruction.

Well, you remember what happened. There was an overwhelming mass of Germans. For a time that little British force of 80,000 was confronted, though they did not know it, with almost 800,000 Germans and a perfectly overwhelming mass of guns. They had to give ground. There began that famous retreat in which our British soldiers fought all day and fell back all night, and how they slept as they walked, Heaven alone knows. It is the most extraordinary feat that ever could stand to the credit, I think, of any fighting force in the world. At one time under Smith-Dorrien they stood and made a counter-attack on that famous Wednesday, the 26th of September. They held the Germans back for a time, then they fell back and back, grimly contesting every inch of the way, not knowing where their allies were on the right, not coming in touch with them, until they fell back on the River Marne. At last word came from Gen. Joffre to his own men, "You must on no account give ground," and French gave his orders at last, "Stand." The time had come to fight one of the great decisive battles of the world. There are not many battles that are absolutely decisive battles, but the battle of the Marne was one of the decisive battles of the world. The plans of the German general staff for forty years came to shipwreck in the Battle of the Marne. All the strategic advantages that they thought to gain by breaking their plighted troth and violating the neutrality of Belgium were lost at the Marne. The credit belongs to our French allies, and yet it is probable that they would not have been able to take that stand and maintain that victory, had it not been for the grim retreat contested day by day of the little British expeditionary force all the way from Mons to Marne. At the time few people realized the significance of the battle. The Germans thought they had only received a slight check. The French thought they had the Germans on the run, and would be able to drive them right out of France on the banks of the River Aisne. Both parties discovered the real situation. The Germans dug themselves in and entrenched warfare took place.

The next crisis, the battle of Ypres. The curious thing is that at the beginning the Germans were driving through so fast for Paris that they never stopped to consider how easily they might have won all the channel ports. There was absolutely nothing to prevent it, and in the course of that retreat the British base was moved from Havre over to St. Nazaire. There was absolutely nothing to prevent the Germans from taking the whole of the north of France. After that it was a race between the Germans and the British to see which would outwin the other.

Then the Germans determined to do what was the obvious move, to make a dash through and break the lines to Calais. Could they get through to Calais they would disturb British transportation on the English Channel. It was a decisive moment, and you know what happened in October and November of 1914. The Germans did their utmost to break through at Ypres. They almost succeeded; indeed, they did succeed but they did not know it. Our troops were so few in number—it was before Kitchener's army was raised—our troops were so few in number that at parts the line would be held by one man every thirty feet. You can read in history nowadays that the Germans did break through. That English general called up the cooks and every man behind the line, and they came armed with stones, picks, shovels, and every kind of imaginable instrument and made a dash at the Germans and drove them back and held the line again. Like the Battle of Bannockburn. And the British officer at the front reported: "We can't hold on longer, the men are exhausted," and French's answer was, "You must, the enemy is equally exhausted." You all heard the famous story of a continental general's boast to the Duke of Wellington that the troops of his country were the bravest, and of the Duke's reply, "Well, I can't say the same of our troops, but I can say that they are braver for five minutes longer than any other troops." And it is the extra five minutes that counts in the struggle for exhaustion. So the Germans failed to break through in the first battle of Ypres. That was another great crisis of the war. Now you remember what occurred on the 22nd and 23rd and the following days of April, 1915. The Germans still had their eye on Calais. It was vital, and through their intelligence agents up and down the line they discovered what seemed to be a weak spot. It was a spot where French Colonial troops were side by side with British Colonial troops. It was a perfectly easy place to make a breach, and they, I believe, discovered further that there were no reinforcements behind the lines, and that there were very few, if any, serious trenches or fortifications between that spot and the lines at Calais. It seemed to be the obvious thing to do, and it seemed a possible thing to do, and they pre-faced their attack by the first use, I think, in civilized warfare, of poisonous gas. You know how the British Colonial troops were in this spot, and you know that it was because these Canadians at that vital point knew so little about the modern science of war that they did not know that according to the rules of the game they were beaten; for their left wing was in the air, and they simply turned around and extended lines and seeing things grow more and more serious they determined at last to make a charge, which they themselves described as a big bluff, but they simply dug into that German wedge. It seemed a hopeless thing to do, but the Germans thought their information was mistaken and that there were reserves behind the lines, and because these Canadians hung on so grimly beyond all the rules of the game, not knowing that they were theoretically beaten, they held the lines and saved the day and broke the German attempt to find a way to Calais. Now that was the second great battle of Ypres, and that after Mons and the Marne was the fourth great event of this first year of grim resistance, of hanging on.

Now, remember, in the next year, that on the western front an attempt was made by the British and French to break the German lines, and that that attempt failed, partly because we had not the right kind of munitions, partly because probably there was some inexperience on the part of the staff. So far as the western front was concerned in that year of 1915 practically very little was done but hold fast and hang on, but in the rest of the field we suffered three very serious reverses. The Germans over-ran Poland and Courland, but they did not succeed in getting a decision against the Russian armies. The Russian armies still held



At Guelph Winter Fair.

and held on, and the Russian troops had to fight, many of them, without weapons at all. Their resistance is heroic in the highest degree. They pitted flesh and bones against overwhelming weight of artillery, and their resistance was great beyond all praise.

Then in the second place our expeditionary force at Gallipoli had to be withdrawn. It is a sad, sad picture. There is one of the most remarkable books in connection with the war written on Gallipoli. It is far more entrancing than any story, and in spite of the tragedy and mistakes the writer regards it as in a sense a triumph. It was a defeat, it was a withdrawal, but it did have the advantage of saving Egypt from invasion by holding the Turkish forces there.

The third was the reverses in Serbia, as you know, and our troops had to withdraw within the lines of Salonika. Now that year, 1915, was a sad year, a grim year. We had simply, in the west, hung on, held our lines, we had learned, however, the reason, that we must have more heavy artillery, that we must have an unlimited supply of high explosive shells. Britain at once then began, under the leadership of that magical man, Lloyd George, to organize her Board of munitions. She set her house in order with a view to victory. In the east we had lost all along the line, and yet nowhere had there been a decision gained against the Allies. Germany still remained besieged; nowhere had she managed to break through the line of steel about her. She still was throttled by the clasp of the British fleet.

Now you come to the year 1916—last year—and it is a series of outstanding campaigns. In the early part of the year before anybody realized what was going to take place the Germans made their onslaught upon Verdun. It was meant to be a blow struck at the heart of France—a blow that would completely crush French spirit and waste French lives. We know the issue. The French general said they shall not pass, and they did not pass. But before the fate of Verdun had been decided the Austrians tried to make a wedge to penetrate down into the Province of Venetia into the rich country of north Italy. That was successfully resisted. In order to relieve both Verdun and Italy there came the great drive of the Russian General Brusiloff in the east, and the upshot of that drive was that the Austrian force of perhaps 750,000 was practically put out of business, was captured, killed or wounded. All of Bukhovina was recovered, and it stayed the Austrian advance in Italy and lifted the pressure at Verdun.

Then came July, 1916, the beginning of the great battle of the Somme. It went on until weather conditions did not permit them to fight longer. It was not for the hope of gaining territory that the battle was fought. There was first the desire to relieve the pressure on Verdun. That was effectively accomplished; so much so that at the end of the year the French were able to recover all the territory the Germans had gained early in the season, together with a great many prisoners. A second reason for the battle of the Somme was to try out the western lines, and the third object was to hold as large forces of Germans as possible on the west and carry on that process of wearing down to the highest possible degree. Sir Douglas Haig said that in every particular they had in view, the western campaign on the Somme was successful, and every week was adding to their victory, and lessons were steadily learned. Our losses, although we were the attacking party, became less and less; the co-ordination of the artillery with the infantry was perfected, men were compelled not to go beyond their orders, and when they gained a trench to wait until they got orders to gain the next trench, even though there seemed to be no one in it. The co-ordination of infantry and artillery was perfect. But the essential was the morale of our men steadily rose and the morale or the spirit of

the enemy steadily decreased. You all have sons or brothers at the front, and are getting letters from them almost every day, and from one end of the line to the other there is testimony to the readiness with which Germans now surrender. I read a letter the other day from one of my own parishioners in which, in a humorous fashion, he describes when the Canadians get near the lines the Germans throw up their hands and say: "Mercy, Kamarade," and run so fast to our lines that they almost outdistance their escort, by the time they get to the first line; by the time they get beyond, someone takes off the shoulder straps, and at last when the prisoner gets to the rear he is holding up his clothes with his hands. So that the Germans have a phrase, "Der Frenchman fights for his country, der Englishman fights for King and country, but der Canadian, he fight for souvenirs." I was telling that story to another of our Canadian lads who was just going into the hospital to get a piece of shrapnel taken out of his arm, and he said that was absolutely true. In fact, he said, "The last thing I saw before I was knocked out there was a little bantam of an English Tommy who had captured a great big German about six foot four, and that little Tommy was wounded in the foot, so he hopped up on the big fellow's back and made him carry him into camp, and Tommy judiciously prodded the Teuton with his sword, and made him keep the pace as they went across No-man's-land and back to the line." And this chap laughed, and said there was a cheer and a hurrah up and down the lines of the whole brigade as this little Tommy came in triumphantly on this big elephant. But the serious part is the morale of our men is steadily increasing; the morale keeps pace with the increase in munitions and metal and all the machinery, and it would seem that as far as we can gather from all up and down the line the morale of the enemy is at least not what it was.

The last campaign last year was the unfortunate Roumanian campaign. It would seem that they were lured into the fight by the Germans who really wanted to get the grain and oil. In many ways it was a disastrous campaign, and yet, after all is said and done, Germany has not broken the steel cord about her, she is still in a state of siege, and with an army of 200,000, the extent of her army in the east, you are not going to get a final decision against the army of the Allies. It would seem that the mind of the British is that the real decision must come on the west front, because there we are immediately behind our lines and can safely and speedily send men, supplies and munitions. If we could only send more supplies and munitions to the Balkans that, of course, would be the most vulnerable spot in the enemy's army, but there is a long and arduous road until you get there, and if you thrash the enemy, the great international robber on the west front, he will drop the spoil that he has taken on, and then would the issue be attained.

One other feature should be added to the events of 1916, and that completes the story of the past. That is, what could the fleet do? I remember reading in the American papers, "What is the English fleet doing?" The answer is, if you just look at it superficially, practically nothing. But no one knew that so far as the regular German fleet was concerned, there might not be some surprise to be sprung. As a matter of fact, when the struggle did come and when Sir David Beatty held the German high seas fleet until Sir John Jellicoe came up, no surprises were in store, and the issue was that the German high seas fleet returned to its base. I remember, in June, 1916, when we got the word, it almost made one's heart go right down to one's boots to read the Queen Mary gone, the Invincible gone, etc. Why, if the fleet were beaten the whole Empire would be at an end. And only gradually did we begin to understand the proportions of events, and we found that the crucial fact was that the German high seas fleet had returned to its base.

Victorious fleets do not return to their base. It would seem as though the Germans from that time made up their minds that the great army of their defence and offence would be submarines, and we are now seeing the fruits of their policy. There is no doubt at all that, so far as the naval side of the struggle is concerned, we are entering upon one of the most critical phases of it now. The German declaration of renewed frightfulness by sea certainly must be most seriously received and considered. It may be the expiring effort of a defeated power, but I am inclined to think it is this: It is the German's strongest weapon of offence now, Germany must realize that sooner or later she will be thoroughly beaten on land. What is she to put on the other side of the ledger when the time for making up the accounts comes? I think she is making up her mind what she will try to do—sink all the British war ships, British merchantmen, and the boats of all the Allies in order to do as much damage as possible, and get as much to her credit as possible



Prize winning herd. Owned by A. Gordon Auld, Guelph.

against the day of settlement. The immediate advantage that she would gain thereby far more than outweighs the friendship of all the neutral nations under the sun. I don't think the friendship of the United States could be to her of any advantage comparable to the advantage she would get from a ruthless carrying on of submarine warfare, and it seems to me that she has taken the risk of estranging all the neutral nations in order to strike the deadliest blow she possibly can against her arch enemy, England. She knows that she would have made an absolutely clean sweep of Europe had Britain not come into the fight at the outset. She knows that to-day the one power that stands between her and world domination is the power of Britain, and she is right enough in diagnosing the situation in this fashion, that her most serious opponent is the British Empire, and she is going to do what she can to that Empire before the day of her inevitable defeat comes.

So we enter upon what we trust is the last phase of the war. We have an overwhelming preponderance on the west front—at any rate of metal, munitions and men, with the blockade still tightly drawn, and with Germany ruthless and determined to wage her piratical warfare to the last.

Of course we should not forget that Germany has frequently indulged in

threats. Whenever she has made a threat she has tried to carry it out, but she has not always succeeded. She threatened to have a feast in Paris, and she did not have one. From time to time she has made many another threat and many another promise, but she has not been able to carry them into effect. We are not reading in flaring headlines what the British fleet propose to do under the circumstances, but we read an occasional line that the Admiralty are taking all possible precautions. They will not be idle. They will arm every merchantman that flies the flag, and they will do the utmost to patrol all the main highways of the sea. If our friends across the line finally decide to come in, their fleet may be of some real service in connection with patrolling. I saw a bit of a letter the other day from a man at the front about President Wilson's peace proposals. The man was writing home in this wise. "If President Wilson wants to have peace, why does he not come over here and help to get it. This is not a private fight." As a matter of fact, that hits the nail on the head; it is not a private fight. It is a fight in which all the civilized peoples of the world are vitally interested, and at least the United States have received absolutely the grossest insult that one great power could receive from another great power, has at last given judgment and broken off diplomatic relations, and is ready, if necessity requires, to declare war. We are now face to face with our enemy in the last stage, I trust. This is the time when every part of the Empire must put forth its utmost effort. The crisis is coming which will bring the end. We have declined German offers for a peace. To decline those offers must mean that we bind ourselves afresh to fight this thing through to a finish, that is what it involves, and this will not be fought through to a finish without still further appalling costs in human life and in treasure. We are called upon in Canada, as in every other part of the Empire, to answer the call of the Empire, the call of civilization, the call of humanity, and we are in Canada trying to answer by men, by raw material and munitions, by money, and by the morale of the people. We are trying to answer by men. A splendid band of men have gone, and it will be to our eternal shame if those men who have borne the burden and heat of the struggle are not backed up by more men. There are men, your sons and your brothers, perhaps, from the farm. You might ill spare them, but they have gone. They are ready and willing to endure thirst and hunger, to suffer from frost bite and vermin and disease, to endure the cold and the pitiless soaking wet, to wallow in the mud and misery of the trenches, to make long marches, and they are still willing to sacrifice all personal comfort and endure personal fatigue, to lose arms and legs and eyes, to be maimed and mangled and to die, that they may win this war for you, for us and for the Empire, for humanity, for the cause of Almighty God, the God of right. If those men have not a claim on the men in Canada who can go to the front, in God's name who has a claim? We have got to answer by men, and that is the first requisite. We must answer by material, and here comes in the peculiar contribution that the farmers of this great Province are able to make in the raw material of food. Everybody who grows more food helps so far to win the war.

Then there is the contribution of munitions. You would be amazed to know the extent to which munitions are being manufactured in this Dominion, how the production is being speeded up, and how women and girls, following the example of the Mother Land, are working side by side with skilled laborers in turning out shells. I had the pleasure of going through one of the largest factories in Toronto, and was amazed to see the keenness of women workers. Someone said they are as keen as razors, as steady as rocks, and as regular as the factory whistle. They are earning a great deal more than wages, high though the wages might be. They are

working for husbands, brothers and sweethearts, they are putting themselves into the work for those whom they love. I heard a story from the superintendent that made one's heart almost weep. There was a widow whose only son had gone to the front. One day the yellow envelope came to the superintendent. He gave it to the matron and she knew or conjectured that it was bad news, and so she took the liberty of opening the envelope. This widow's son was killed. So she went down to the lathe and she said to her, "Mrs. ———, I want you to come to the office on a matter of business for a few moments," and the mother's instinct told her true. "What is the news, is he killed," she asked? "Come into the office; let me tell you," answered the matron. "I don't want to lose any time, tell me here." "Well," she said, "yes, Tom is killed, and now you had better take the day off, go home and rest." "No," said this woman, "I will stay here by this lathe, and I



Public School Exhibit at Picton Fair.

will make that lathe turn out more shells than it has turned out before," and by a matter of computation she did speed up production forty per cent. We must answer in munitions and we are called to answer in money. Now you are doing that directly and indirectly. Every particle of foodstuff you grow is the equivalent of money, for you never have too much ready money; yet there is no class, perhaps, in the whole community that is more thrifty than you, who always have something to lay by.

The Government asks you to-day to buy war securities. By buying these certificates at \$21.50 or the \$40 odd or the \$80 odd certificates, which will at the expiration of the time net \$25 or \$50 or \$100, you can feel that you are directly helping the Government to pay for shells, and shells will help to win the war. Link together, save your money, buy Government securities for shells, and win the war. Link those ideas together. Everybody who saves at the present time for the sake of buying Government securities is directly helping to finance and to help win the war. Never was a patriotic service so easy, you can't call it

self-sacrifice, you can scarcely call it self-denial to invest money with absolute security and at least five per cent. interest, and it is a vital service, and it is worth doing, and it helps to win the war, because everything that we can finance in the overseas dominions lessens the colossal burden that the Mother Country is bearing, not only for herself but for the Allies, and she is bearing the greater part of the financial burden for them all. Whatever we can do to finance our own war expenditure and to provide for munition contracts here in Canada will relieve her and ultimately win the war.

And lastly, it is the spirit of the people behind the man that ultimately makes it possible to win the war, and I believe the spirit of our Canadian people to-day, wherever the issues of the war are realized, is a spirit of such sacrifice that the people will respond to any demand that is made, that would be necessary for the efficient prosecution and speedy end of this great struggle. Is our cause worth fighting for, and what does it really mean apart from national consideration? The cause that we represent is the cause of justice, the cause of trustworthiness, and the cause of freedom, that the British flag has ever stood for, that the flag stands for to-day all the world over. British justice has become a slogan. You can go to the highlands of the sea, or you can go into the heart of the darkest Africa, or you can go among the teeming millions of India, and everywhere you find that British justice has meant peace, has meant material prosperity, has meant the suppression of inhuman practices. A man must have a heart of stone whose heart does not thrill when he remembers that he belongs to an Empire whose foundation stone is justice. We are primarily in the war because we are keeping our word. I once heard a missionary tell this story. He was engaged in work among Arabs across the River Jordan. These Arabs were the most picturesque and fertile liars that he ever met, and he said whenever an Arab came to you and wished to assure you that he was intending to tell the truth, he prefaced his remarks in this way: "By the word of an Englishman, what I say is true." And the Empire, the race that will imperil its national existence to keep its word is going to be in the front rank when the great day for the nation comes. And the reason of these characteristics of the Empire and the elements in the great cause is that marvellous and magic element of freedom. Britain has sometimes been considered to be quixotic and foolish in the manner she has trusted her people, but wherever she could safely grant her people self-government she made the grant. I suppose the whole thing is summed up in the story of three days. One day in August, away back in 1902, the British Parliament banished forever from the British Empire a Boer farmer called Louis Botha, because he had led the rebel forces. The scene changes and a few years later on you find the British Parliament granting self-government to the Transvaal, whereby this same Louis Botha came back and became Prime Minister of the Transvaal, and at last Prime Minister of South Africa, and just a year ago the British Parliament, with one voice, passed a vote of thanks to this same General Louis Botha for having suppressed a rebellion. Was there ever a more striking and dramatic justification of the gift, the magical gift of freedom, and the people of the world know, and the little nations know, that the one great power that stands for a chance for the underdog, a chance for the little nation, and a chance for the people who are down, is that noble Empire whose foundations are laid in freedom, the mother of the free Parliament. The cause of the Empire is really the cause of all that is highest and noblest in civilization. It is the cause of justice; it is the cause of honor and truth, it is the cause of freedom, and in the days to come, when by the blessing of God, we shall be able to look back on these awful years of economy and struggle to

victory, we shall be humbly thankful that we lived in these great times, that we had some share in freedom's crown, and we shall be able to tell our children and our children's children that we lived in the days when we saw the powers of darkness put to flight, and when we saw the morning of the new day break. May God in His mercy hasten the day.

A hearty vote of thanks was tendered to Canon Cody and Prof. McNairn for their splendid addresses.

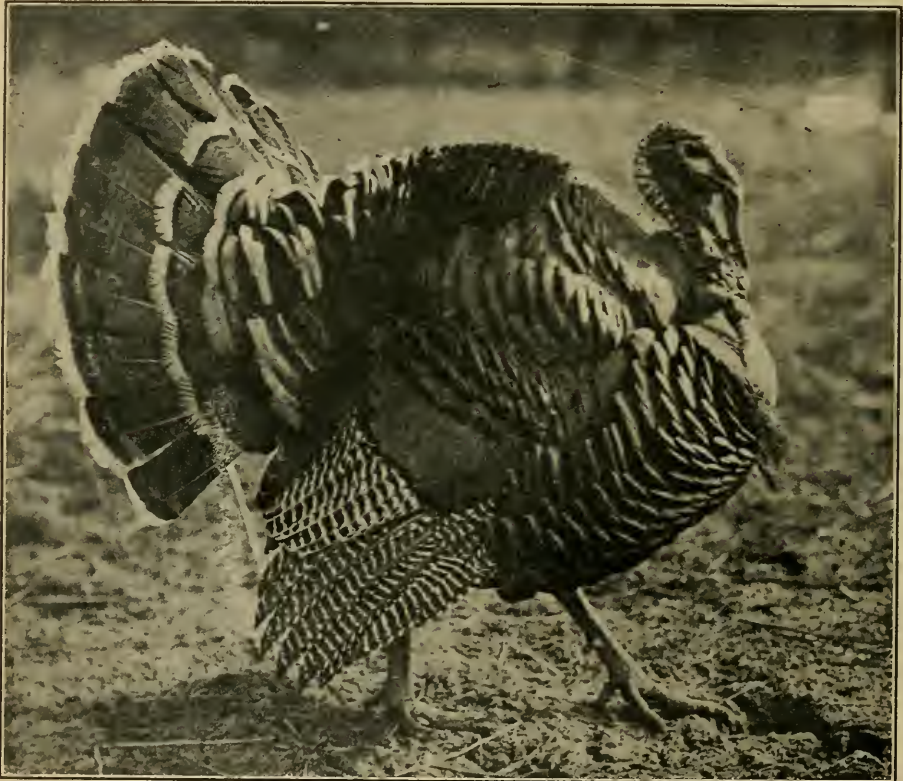
The election of officers and directors resulted as on page 6.

ADDRESS.

HON. ANDREW BRODER, MORRISBURG.

I am speaking to men this morning who represent the greatest industry of Ontario. This is the foundation on which all other industries are built, and the farmer is the man who feeds them all. We sometimes forget the importance of the agricultural interests of this country. You come from the different districts of Ontario, and if there is one thing more than any other we should endeavor to do in this country, it is to fasten the people upon the soil of this country. It is a known fact in history that the men who own the soil always govern the country, or should do so. You come up here, representing the farmers' and stock breeders' interests from your different localities, and it is up to you to see that the interest does not fail. To a certain extent you are handicapped in that the cities are drawing many of our best young blood from the farms of Ontario. This is not as it should be, but we are looking forward to the time when the back to the land movement will become a reality. There is a class of men who have done for the country what is never appreciated by the people, the men who import improved stock and endeavor to improve the stock of the locality in which they live. They do it at a great sacrifice, and they succeed. When a man starts off on some new problem, the people watch him. Many of them die before they see results. But these men are a great blessing to the people, and others are willing to follow their lead when they realize the opportunity that is before them. "Men may come and men may go," but their good work goes on for ever. Now, I sometimes think that many of the farmers are to blame if the fall fair in their locality does not succeed. They wait for months to see if an animal is going to be in shape to exhibit at the show, and likely to take a prize, before they pay their \$1, and if they do not think the animal will win a prize, they will not pay the fee. There ought to be more local loyalty. There was a time in this country when men came into different localities and started business. People went to them and did their business with them; they prospered. The village or little locality was a social centre, and public opinion was formed there. Now that is gone. You will find more people sitting down around the table at night reading Eaton's catalogue, than you will find reading the prayer-book. The large urban centres are giving the people their ideals to-day. That is unfortunate, because the effect of it is to take the people from the soil. I have a friend in a town in Eastern Ontario, a successful merchant, very kind to the people. There was an old lady came in one day, and what do you think she said, "Have you a coat you could lend me to go to a funeral. I am waiting for a Toronto bargain day," and the good merchant loaned her his wife's coat.

You have a problem in the rural districts, and that is to show the people the possibilities of the soil. What is going on to-day? Destruction of labor, destruction of the fruit of labor. There is no money destroyed, except that which goes down in the vessels, but we are destroying the product of labor, and the great effort of the future of this country is to replace that destruction of labor. Where are we to commence? We must commence at the basic industry of this country and of the world, in the fields, to solve the problems of the future. Now, sometimes, it is not well to attempt too much. The young man, sometimes, does so when his vision is greater than his effort. It reminds me of a young man who



A Utility Bird.

lived in the United States at one time. His theory was to convert the whole world. After a little experience of men and things, he came to the conclusion that if he converted the United States he would be doing well. After a little more experience he thought he would be doing well if he converted one state. Then he thought he would be doing well if he converted one parish. At last he said to his congregation: "When I started I wanted to convert the whole world, then the United States, then a State, then my parish, and after preaching to you six months, I have made up my mind if I stay three months longer I will do well if I save my own soul." Now, I do not like the man who does not attempt something. The man who does not attempt something makes no mistakes, but he makes no progress. Such a one is a crank.

We have in this Province children's fairs. They are under a different organi-

zation from this. I was at a children's fair down east, and saw 1,500 people gathered there. There was the product raised by children, boys and girls, home-made bread, needle work and horticultural products. There are four townships in the county of Dundas, why not amalgamate them with the county fairs, and bring these children there so that all can see what progress they are making. There are a good many lost arts in this country, the making of butter, the making of bread. I had a letter from a young lady the other day, raised on the farm, she was learning to knit, and she, raised in a farm home! Going up and down the train, I came across a lady who was knitting. I said, "Is this for the soldiers?" "Yes." "What about John?" "He buys his." We must get down to the children, down to the farm. These great central fields are for the enterprising man who has money in his pockets. But you overlook thousands of poor fellows down in the furrow who can't get to the big fairs. Do something for them at home. This great Toronto fair is a great advertisement for the whole of Canada, but what would the Toronto fair be without you behind it? Now, I am not what you call hyper-sensitive about things that happen at fairs. You will see a lot of the same staid old ladies that you see at church on Sundays, sitting in the front seats at the fair watching a horse race. And who would remove that element of taking a chance away from the Anglo-Saxon?

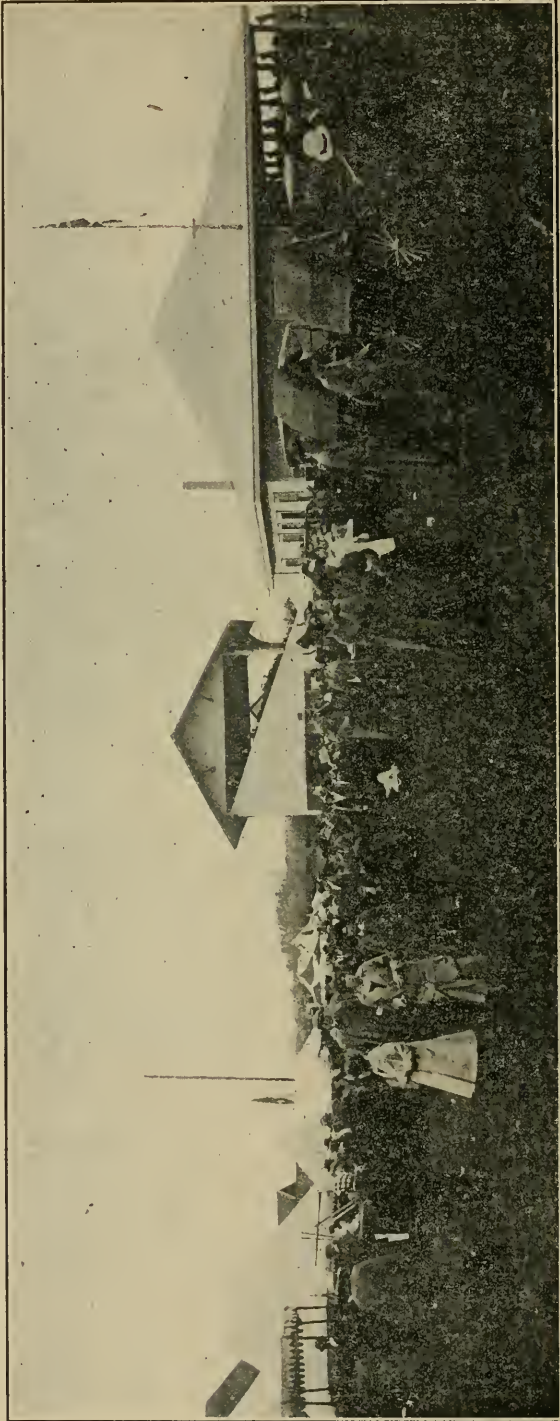
If I want to say one thing more than another to you, it is to let us make an extraordinary effort to keep up the local fair, and keep the home fires burning in our own places. I am away from home a great deal in the course of my work, but when I walk around on my farm and see Nature and Providence trying to help me, and then walk up and down the streets of Broadway, I, for my part, prefer the furrow and the green fields. The business man and the public man must always see the younger men pass him in the race. He cannot avoid it. But the man on the farm at eighty-five can enjoy his flocks and his acres as much as the younger man. And the young man, as he walks through his corn fields, can see Nature unfolding her designs and helping to feed the world. I thank you for the honor you have conferred upon me by asking me in my humble way to address this great Convention.

HOW WE IMPROVED PICTON FAIR.

A. P. MACVANNELL.

Our Society was organized eighty-five years ago, and we have records that sixty-four annual exhibitions have been held. In the early days, the Association held a one-day Fair, later a two-day Fair, and in 1914 we held our first three-day Fair. This proved to be a great factor towards permanent improvement. As a result of adopting the three-day Fair our district has been much extended, we have a very decided increase in number of exhibits and attendance, but most important of all, the three-day Fair gives us greater assurance that we will have a reasonable amount of fine weather.

It is customary for our board of eighteen members to meet shortly after the annual meeting to determine dates for the Fair, to appoint committees to take charge of advertising, grounds and buildings, attractions, etc., and make definite plans for the year. The next meeting is held early in March, when the prize list is thoroughly revised and committees appointed to superintend each class.



At one of the best conducted fairs in Ontario.

The business men and people of our county town have always taken a live interest in the Picton Fair. We have now five business and professional men on the board, the balance are active farmers. This is as it should be, as both are necessary for the welfare of the Society and the progress of the community. The members of the board keep before them one main plan—to hold annually a purely agricultural exhibition, and emphasize those branches of agriculture most important in that district.

Improvements made by Prince Edward Fair have been gradual. The present site was purchased and laid out over thirty years ago, and credit is due the directors in those days for their foresight in obtaining such a suitable site—on a main road and overlooking the beautiful Bay of Quinte—and laying out the grounds. These are about 17 acres in extent, and we have an excellent half-mile track.

ACCOMMODATION FOR EXHIBITS.—One of the main reasons for the success of our Fair is the fact that we have ample accommodation for the exhibits; these are protected and arranged in such a way as to show up to best advantage. The main Palace is fairly large, and provides ample space for exhibits of Ladies' Work, Fine Arts, Public School Exhibits, Flowers, Dairy and other similar products, Cooking, and exhibits by merchants. Space is rented to merchants and the demand exceeds supply. Exhibits which might be tampered with by exhibitors are protected with wire netting. Perishable products like butter and dressed poultry are exhibited in a refrigerator with glass front. They show off to much better advantage, and do not deteriorate as they would when simply placed on tables. This refrigerator was built at cost of \$25.00.

We have a special building for Fruit, which was built in 1912, at a cost of \$750. This building is 40 ft. by 20 ft., has abundant supply of light and tables for the exhibits. The tables are protected with wire netting and covered with clean white paper. The names of the varieties are printed in large letters above each kind.

Our horse barn was built in 1910 at a cost of \$1,500, and will accommodate fifty horses. We have an additional seventy stalls, the front of which forms the fence and part of the grounds.

There are also ample pens for sheep and hogs.

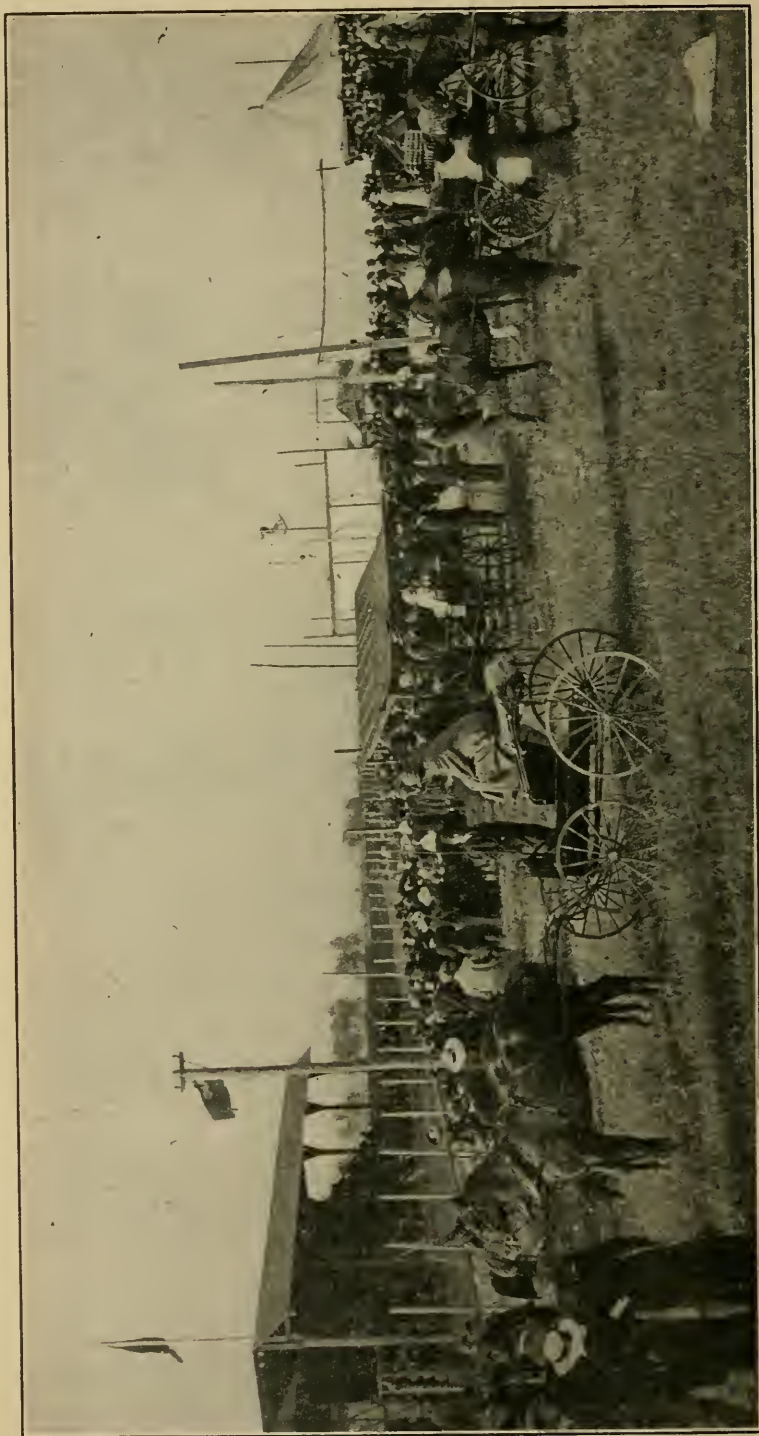
Our new cattle barn was built in 1915, at a cost of \$4,000. The Society provided one-half the cost and the balance was subscribed by the local Curling Association. It is used for curling in winter and cattle barn during summer. There is room for three rows of cattle each row 80 feet long, and ample room for visitors and attendants.

We also have a commodious Grand Stand, capable of seating 2,000, and twenty boxes additional. There are also bleachers with seating capacity of 1,500.

The Poultry is exhibited under Grand Stand, which is so arranged as to give maximum amount of light. This has been very satisfactory to exhibitors and others.

The Roots, Vegetables and Seeds have been exhibited in a large tent. This method is not satisfactory as it is difficult to arrange exhibits to good advantage. A tent is very satisfactory for a School Fair, but is not suitable for exhibits that are to be in place for three days.

MAKE BUILDINGS AND GROUNDS ATTRACTIVE.—Our directors pride themselves that the buildings, grounds and fences are kept attractive. It is the practice to paint all buildings and fences at least every other year, and repairs are



In front of the grand stand.

made whenever necessary. All glass is frosted. This saves expense in cleaning, adds much to the appearance of the buildings, also to the comfort of visitors, as it prevents penetrating rays of sun. The track is watered when necessary to keep down dust. Weeds are cut weekly and grass is cut regularly. The lawns around buildings and track are cut with lawn mower. All paper and rubbish on grounds and in buildings is collected each morning before 9.30 and burned in receptacle built for the purpose.

In the main building, fruit house and other buildings, evergreens and flags are utilized to great advantage. A few dollars spent in this way add much to general attractiveness, but these things should always be complete before exhibits come in, and exhibitors will take the hint and make their own exhibits more attractive. Flags are placed on all stalls in Horse and Cattle barns, and on each pen of sheep and hogs; as well as on outside buildings.

The Judging Rings are fenced off; the Horse Ring being across the track in front of Grand Stand, while the Cattle Judging Ring is in front of the Cattle Barn. Judging is continued over the three days.

Another feature which adds a great deal to the attractiveness of an exhibition is to keep all tents and booths on the midway in perfect alignment.

COMFORT FOR PATRONS AND VISITORS.—Realizing that the success of an exhibition depends on good will of the patrons and visitors, the board has made an effort to provide simple comforts. A number of benches were purchased and placed at various spots on grounds. A Rest Room was built in 1914 for the comfort of the ladies, and this building is much appreciated. This building has commodious verandahs, a large room equipped with couches and easy chairs. There is also a wash room and lavatory in connection. Along with the Rest Room is a large Dining Hall where meals are served at all hours. This has proved a great convenience to exhibitors, their help, and the general public.

DEPARTMENTAL JUDGES.—Our Association prefers departmental judges, and employed nine in 1916. Should judges not prove satisfactory, the Superintendent is advised as soon as possible after the Show.

SPECIAL EDUCATIONAL FEATURES.—In addition to the exhibits in the regular classes, we endeavor to obtain as many educational exhibits and demonstrations as possible. These are all useful and invariably attractive. The exhibits I refer to include Bee Demonstrations; Exhibits Illustrating Results of Experiments Conducted in Demonstration Orchards; Exhibits from Central Experimental Farm, and there are also judging competitions for young men and a special Three-Day Dairy Test.

REVISING PRIZE LIST.—The prize list is revised annually during the March meeting of Board. The list should be adaptable to the district, and should emphasize those branches which are most important. The School Division is completely changed each year. In this Department, the Board has the advice and help of the Public School Inspector, who arranges the list in accordance with the work carried on in schools during the current year. Other classes are reorganized in like manner, and larger premiums awarded in classes most prominent in the district. To cite an example: Holstein cattle are bred in our district in greater numbers than all other breeds combined. We feel that we are right in offering larger prizes, and a greater number of prizes to this breed. Breeders of other classes say they should have same treatment as the Holsteins. Our reply to them is, give us the same number of entries, and we will give same amount of money. This plan is working out to good advantage.

ADVERTISING.—This is a very important matter, as attendance is the most important feature of a successful Fair. We commence advertising right after the annual meeting. We follow a definite plan and keep something in local papers each week; follow this up regularly and four weeks previous send copy to other papers in the district. Here is the advantage of running the Fair as a business, and having plans for Fair laid early in the year. We spent \$300 in advertising, including the prize list and lithographs in 1916. Does it pay? We seem to get the crowds.

ATTRACTIONS.—In looking over the minutes of the meetings of previous Boards of Directors during the last thirty years, I found the question of attractions had been much debated each year. I found also a great variety of opinion in regard to attractions. Our people seem to appreciate good music better than anything else. During the last three years, we engaged the Band of the 48th Highlanders from Toronto for the three days of the Fair. We also built a band stand across the track from the Grand Stand. The band cost in the neighborhood of \$700, and formed the chief attraction. We also had a baseball match every day.

GETTING THE CROWDS.—Make the first day a big success, and equal to the second and third day. Announce definite programme early and follow programme without change. Inauguration of School Children's Day, procession to grounds, decorated automobiles, official opening, something going all the time, judging done promptly and on time. Final grand parade of prize-winning stock definitely organized and led by Band of 48th Highlanders.

A MEMBER: On what conditions do you run your school exhibits? Is there a special prize given for that?

A. P. MACVANNELL: No, that is in the regular prizes, and the school exhibit is open to school children free. We do not run our school fairs in connection with the County Fair.

A MEMBER: How many members did you have?

A. P. MACVANNELL: In 1916 our membership was about 860.

A MEMBER: What are your gate receipts, and miscellaneous receipts?

A. P. MACVANNELL: We received \$16 for entries; \$20.50 for stall rents; \$176 for privileges, that is sellers of candy, etc., and the gate receipts were \$2,449.

LADIES' WORK AT FALL FAIRS.

MISS M. V. POWELL, WHITBY.

A needle, though it be but small and slender,
Is truly both a maker and a mender;
A needle is an instrument
Of profit, pleasure and of ornament.

In speaking to you on this subject, I would like to transport you back to ancient days so that we may learn something of the dignity which characterized the needlecraft of olden times. To the enthusiast in needlecraft, it is interesting to trace the history of the art back to its beginning, and discover, if possible, how and why the processes which are our heritage, came to be a part of the knowledge of the world. A great deal of its early history is told in that intimate book of reference, the Bible, where we read, that God gave "wisdom of heart" to certain men to practise all kinds of cunning work of the embroiderer in blue, and purple, and scarlet and fine linen.

We find also that those who practised the art of embroidery were chiefly, and up to a certain period of time, exclusively men, called men of genius, and their skill was inspired. This art was held to be a matter of such dignity and importance, as to be worthy of direct inspiration, and in the robes of Aaron and his sons, even the designs of the borders were according to divine command. This gives the work a dignity and importance of which it has been robbed, more or less, in modern times. In later history, we find both men and women practised the art, and raiment of needlework counted as among the riches of the world, and has always been held as one of the valued arts of the world; and that in the days when banks, and stocks, and bonds were unknown, and riches and wealth confined to the treasure chests, rare and fine specimens of needlework represented riches, and were kept as a part of the nation's wealth.

All along the ages, even down to our own time, the histories of peoples have been written in their needlework. How they lived, what they liked, what they possessed—we may know it all, if we study the needlework of the different periods. It tells its story in the indications it gives of the tastes, habits and tendencies of the times. Indeed, in this way we are even now telling our own history in the luxuriance of our household linens and decorations, upon which we embroider unfading wreaths and flowers, which add to the adornment of our homes.

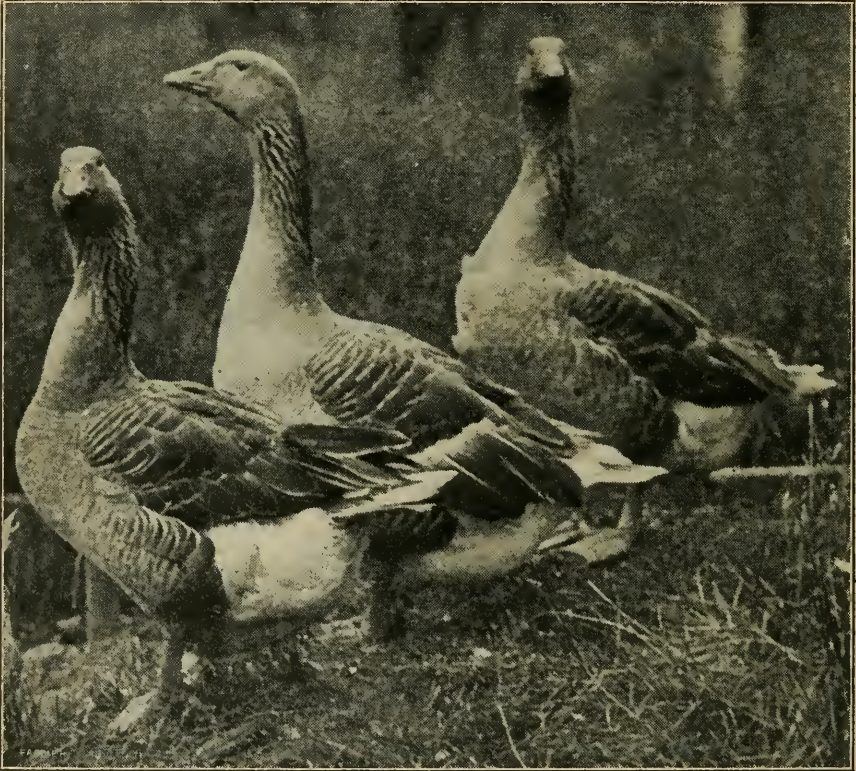
That environment exercises an influence on health and temperament is a proposition that is gaining wider recognition year by year. If the day is begun in an atmosphere free from the obtrusions of grotesque design and bad coloring, the probabilities are favorable to the business man reaching office or warehouse in a condition fit to make the most of the opportunities which present themselves, and for the homemaker to maintain an equable temper throughout the day. There are certain colorings which possess a brightening effect and others a depressing tendency. The home decorator should become familiar with these qualities and effects, whether it be in drapery or needle decorations. It has been truly said that the history of the origin and development of beautiful artistic forms constitutes a portion of the history of civilization, and in the evolution of each particular people, we may find, in their effort to express ideal beauty in form and color, a reliable test of the degree of progress attained.

A survey of the artistic expression of any people brings out the fact that varying periods of time have been required to produce results. In the growth of a nation, as the sense of order, proportion, and beauty is gained, artistic impulse expands and finds expression. It probably adds to the pleasure of any occupation to know what other people who belonged to other races and other times have done with the same practice, and to know that we are making a record of our own time, through our needlecraft, which our descendants will study with interest. They will find at least that this particular generation possessed exhaustive skill with the needle and was also distinguished for its luxurious and refined tastes in domestic art and life.

There are fashions in fancywork as in most other mutable things with which frail humanity has to deal. The earliest art work to be recorded in Canada, is the pottery made by the Indian women, of which a great variety of specimens are still to be seen. In weaving and dyeing, in bead work and many other ways, the Indian women made a creditable beginning in handicrafts and home industries. It is also very interesting to note the many devices, and the skill displayed by our grandmothers in the decorations of the home. Knitting, embroidery and rug-making

formed an important industry, and many beautiful specimens remain to show that the artistic spirit was not dormant. The art of rug-making has been revived in these latter days, and takes a foremost place among the modern handicrafts.

It is scarcely three decades ago since Canadian women began to display their needlecrafts at various exhibitions. At the Provincial and local Agricultural and Industrial Exhibitions, prizes were offered for everything, from the crazy-patchwork quilt, or product of the loom, to paintings, original and copied, of subjects varied and picturesque. The reason of these Fairs, which still exist, and in the interests of which we are met to-day, was at first to provide a rendezvous where the farmers



Toulouse Geese.

could exhibit, compare, buy and sell every product of their domain. Canadian women vie with each other in their crocheting, knitting and patching. Tidies and rag-carpets not only display a desire for comfort, but give opportunity for some artistic expression in coloring and design. Wax flowers, hairwork, beadwork, scenes gay and grave, displayed taste or the lack of it, on the part of the originators, but showed more than anything else the innate love existing in women under all conditions for artistic expression.

That love of the artistic has been accelerated through the medium of loans and exhibits, and also through qualified teachers giving instruction in the art as an accomplishment. The old time bead work, wax flowers and similar work, has been replaced by more modern decorations of household linens in Madeira, Roman cut work, the now popular Filet crochet designs, the revival of lacemaking of all

kinds as Honiton, Point, Renaissance and pillow laces, bringing into play the skill of the worker in both design and execution.

The beautifying of personal wearing apparel, lingerie wear and household supplies, gives broad scope for the development of the arts, giving added culture to the possessor. The use of many hued threads in the carrying out of designs should receive the encouragement of the beholder or possessor, lending, as it does, character, form and personality, to work which, if carried out in the white threads, lacks depth and individuality. The conserving and developing of the artistic, the æsthetic sense, is of vital importance as a national quality. The nation which neglects or undervalues the influence of the æsthetic in her people, is the nation that fails to measure up to the civilization demanded of it.

We are writing the history of our people, the degree of culture we possess, by the needlework of our time. The reconstruction work in Canada, after the war is over, will extend to the needlecraft as well as to every other department of national life, and it is important that the rising generation be instructed carefully in the arts that they may become expert needleworkers, not only in the plain household stitchery, but also in the more decorative work. There has been a most erroneous idea among many workers that fancy work was something that any person could pick up and do, without having made any study of the fundamentals of the art. From personal experience, while giving instruction to one of my classes in art needlework, I had a pupil present herself for instruction and request to be given one of the most advanced pieces of work, requiring skill and knowledge, while she innocently confessed she did not even know upon which finger the thimble should be worn, and admitted never having made the most simple garment for herself. Hence the importance of proper instruction in our public schools and colleges under capable qualified instructors, that the fundamental principles of needlework, when the student has become familiar with them, may be applied to any kind of needlecraft.

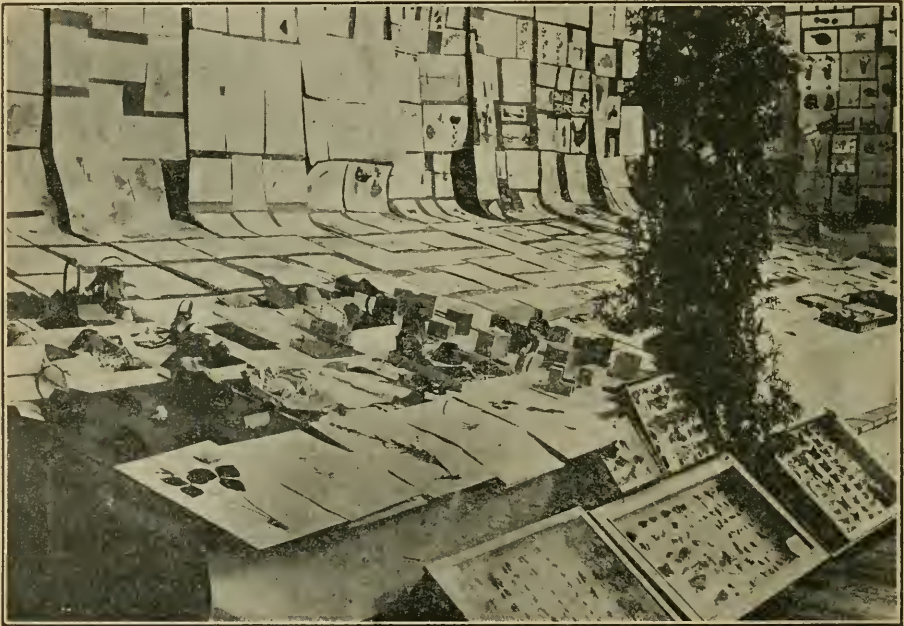
The church Sisters have rendered efficient service in this regard, as the very high standard of the work done in the church schools will testify, and the ecclesiastical embroidery, which is done in many parts of our Dominion, supplying a large portion of this style of needlework for the old land.

During the last decade, the class of work displayed at our Agricultural and Industrial Exhibitions, has undergone a decided change for the better. The former dust-catching wool crochet mats, tidies, hassocks and similar work, has given place to the more useful, and certainly more decorative and refining style of work, in the dainty designs woven upon household linens for bed chamber, dining-room and personal wear. The beauty, harmony and utility of the linens for living room and porches give an individual, personal touch to each part of the home. Then the brass work, the pen pictures, the variety of art designs for wall hanging and for china, show a most marked advance in colorings, in design and in execution.

This work should receive special care and attention, especially in the exhibits of the Canadian National Exhibition at Toronto, as practically all the smaller societies throughout the Province, take this as their standard. There should be a weeding out of the imperfectly executed, the faulty design, the crude workmanship, if we hope to raise the standard, and the competitive value in our various smaller localities. We should have a style of work distinctively Canadian in its origin and its development. The inlaid, Madeira and colored embroideries belong

to the people of France; the crochet designs to Ireland; the Swiss peasants are the original workers of white embroideries; Bulgaria, Roumania and other countries have their special native work; Italy and Malta being the home of many of our most beautiful laces.

A very interesting story is told of the origin of the famous guipure lace. It is that of a sailor lad from the Indian seas, returning to his home in Venice, who brought to his betrothed, a worker in needlepoint, a bunch of the delicate pretty coralline, telling her it was lace that the mermaids made in the coral caverns under the waters of the Indian seas. "Pretty as it is," said the needleworker, "I will make something with my needle far prettier. My bridal veil shall be of the mermaid's lace." The sailor lad sailed away and was gone for months. Day by day the young girl worked with her needle, forming white knots and tiny



Side View of Public School Exhibit, Picton Fair.

stars, and uniting them all by delicate "brides," until an exquisite long scarf of guipure was produced, so marvelously beautiful that when she wore it as her bridal veil all Venice went wild with admiration, and many noble ladies, princesses, and queens, became the patrons of the young lace worker. Many other kinds of work might be mentioned. As yet there is no distinct branch of needlecraft, which is characteristic of our countrywomen.

In closing, may I give these suggestions to the various representatives of the Agricultural Societies:

1st. Include one or two influential ladies of the community upon your directorate, as well as on committee work.

2nd. To encourage local exhibits—where you permit professional workers to enter—have a distinct class for the amateur as well as for professional work.

3rd. If possible, send out to prospective exhibitors with your prize lists a scale of judging, for example: Style, 15 per cent.; Suitability, 30 per cent.; Execution,

35 per cent.; General Display, 20 per cent. At the fairs throughout the Province there is need for improvement and encouragement in the making of buttonholes, buttonhole-edges and darning work.

I should like just before closing to refer for a moment to the school children's exhibits. Many of the Societies are giving special attention to the school work, and too much praise and commendation cannot be given for the interest taken in this line. Still, more may be done by a large number of Societies in encouraging children to exhibit their work, either with the needle, pen, brush, or plant cultivation. In this respect, Prince Edward County stands far in advance of any fall fairs which I have had the privilege of visiting.

The future depends upon the foundation now being laid. The place the artistic occupies in the child life to-day will determine in a large degree the culture, refinement and decorative abilities of to-morrow. In ancient days, the designs and works of art were deemed to be by direct inspiration. In modern time, cultivation and development of the finer senses by careful teaching, and by a high standard of work at our National and Provincial Exhibitions will tend to maintain a dignity and value to the needlecraft of our fair Dominion such as is due to Canada, the Land of the Maple.

ADDRESS.

W. B. ROADHOUSE, DEPUTY MINISTER OF AGRICULTURE, TORONTO.

It is a pleasure to be with you, even for a few moments, and to look into your faces and see therein whence comes the enthusiasm which Mr. Wilson shows in his work in promoting the welfare of the Agricultural Societies in this Province. These are the special care and thought of the Superintendent. It is the desire of the Department that all branches should co-ordinate and co-operate to render assistance in whatever move is made. Let me illustrate just what I mean by that remark. I do not intend to go into the various lines of organization which the Department carries on, but I would like to mention one or two points to illustrate that general principle on which we are working. A number of years ago the district representatives started the plan of conducting agricultural courses for young men. One of these is conducted in every county in which there is a district representative. A shorter time ago, through the district representatives, there were established school fairs with the idea of interesting the boys and girls in agricultural activities. Now we find that the agricultural classes of the district representatives are drawing from the boys who have become interested in the school fairs and desire to take a further course of study in this way. Consequently, from one county out of twenty-five which attended that class there were nine who had been drawn from those from that immediate vicinity who had become specially interested in the fair work. In another county there was even a larger percentage, and as the years will go on these things should work to the general advantage of the individual and the Province as a whole.

Similarly, the school fair should be of assistance to the larger fall fair. In a number of counties during the past year the students who took prizes in the school fair were thus encouraged to go on and exhibit in the larger fall fairs and there they won prizes as well. I have in my hand here a list of illustrations drawn from only two of the fall fairs of this Province, where a considerable number of first,

second and third prizes were won by the boys who got their start in the smaller line of agricultural interest and activity, and so I would expect as the years go on the boy or girl will become important adjuncts to the larger agricultural fairs, and in this way make for the larger and more permanent and enduring success of the organizations in which you are specially interested. You will see, therefore, that our hope and object is to co-operate and not to compete; to build and not to detract, and anything that can be done or suggested to accomplish this purpose will have our hearty co-operation.

Then there is another phase of the Department which has been made to assist in the work of the agricultural societies and that is the Ontario Agricultural College. For the past three years or so all the judges from the western section of



White Plymouth Rock Cockerel.

the Province who have gone out to judge the live stock and other exhibits, and for a longer period those who have gone out to judge the field crop competitions, have taken a course at the Agricultural College of a few days with a view to arriving at certain standards and uniformity which they could carry back to their districts and which would reflect on the betterment of the exhibits as a whole. That, as you are aware, was not carried on during the past year for many reasons under which the Department was working at that time, but, while I cannot say that the adjustment of appropriations necessary has been finally passed upon, I will be very much disappointed indeed if those courses are not continued during the present year, in time to be of assistance in the fairs which will be held this fall. That is another line in which the other branches of the Department endeavor to work with you and help along your work to still greater success. There are many others which I might mention did time permit. The judging classes of the district representatives, for instance, is a feature of the fall fairs at the present time in many parts of

the Province, and the fairs cannot do better work than adopt such plans as will interest the young men in the exhibitions, in bringing forward their products that they may get that ideal so necessary for complete and permanent success. This fact was impressed upon my mind very forcibly not long ago when I was discussing fairs with a farmer in this Province. I asked him what good the fairs were to him, and he said, "Well, you know I asked that question of myself sometimes and sometimes I did not think they were much good. But, one year, my boy, looking over a very nice colt we had in the yard, said, 'Father, how is it we never show at the fair?'" He said, "I hardly know." "Well," said the boy, "I like that colt and I think we ought to take it to the fair this fall." The father being a sensible progressive man said, "All right, go ahead." That colt was taken to the fair that fall; it won first prize, and that colt was the incentive which led that young man to become an important and permanent exhibitor in the years which followed; and



White Plymouth Rock Pullet.

so in all this you have a great opportunity for influence and usefulness. Your work is one which spreads over a great many years and has a lasting effect, though there may be some earlier incidental discouragements. Nevertheless, you have this consolation, that you are building for the future, and perhaps building better than you know.

Just now, however, we are more concerned about what we can do for the present, because we realize that this year every effort that can be put forth by all the agricultural organizations should be made to throw as much strength and as much knowledge and as much influence as possible, having regard to the conditions in which we find ourselves, in the production of the maximum of foodstuffs for this year. If there is anything which you can do through your organization, through the splendid Field Crop Competitions which have developed into such an important work, through the regular competitions of the fair, if there is anything which you can do to prevent land from remaining idle, or add to the greater productivity of lands already under cultivation, or to add to our foodstuffs in the way of live stock, I am sure that you will, one and all, in your different organizations, attempt to add to that, because that is the most important thing at hand at present. We have

passed through, in the year 1916, a season of peculiarly trying and difficult conditions from the agricultural standpoint. We were confronted with weather conditions over which the skill of man could not exercise control. We look back upon that season, and while we have to reckon with a short crop we had the consolation in the fact that the returns from it have not fallen so far as money value is concerned. I was struck to-day in looking at some figures. The farm crops of Canada during 1915 were valued at \$840,000,000; in 1916 at \$808,000,000; although the quantity was from 75 to 50 per cent. less, in many cases the value was not more than 4 per cent. less. That is a striking factor but it should not be looked upon for any more than it is worth. Aggregate returns and net profits are not always the same, and that enters into the conditions of 1916 in a very peculiar and special manner, because of the higher costs of labor, of feeding stuffs and other things which went into the production of that crop. Then there is another point. Sometimes it is said that the farmer gets as much money for a half crop as for a 100 per cent. one. From this the argument is made that if it is possible to get as much for a half crop as from a 100 per cent. crop, why worry about the larger one? That looks logical, but is liable to be misleading. Whether the crop will be a maximum or a minimum one depends to a certain extent upon conditions out of the farmer's control, and if an individual thinks by getting a half crop he will get as much out of it he may find himself with only a quarter money return. What I mean to say is this: that it is within human power to produce the maximum crop for the season, but it is not within the human power to produce a maximum season. All we can do, therefore, is to see to it that our efforts are made toward producing a maximum crop for the season and let all other things remain, as they must remain, beyond our control or regulation.

And so, in concluding this morning the brief remarks which it has been my pleasure to intersperse in your very interesting and practical programme, I would say this: as we stand now tiptoe upon the threshold of another season, with all its mystery and its uncertainty, conscious only of its opportunities, let us, with unwavering energy and unflinching determination, endeavor to do everything which will make this year a year of victory for the farmers of Ontario as well as in a larger sense a year of victory for the nation in the cause which we all have so much at heart.

POULTRY, LIVING OR DEAD.

MISS MARY YATES, PORT CREDIT.

I don't know whether your attention was called recently to a statement that \$10,000,000 was spent last year in importing delicacies of all kinds, and this is intended for a plea for the increase in production of choice foods for the home market. "Poultry, Living and Dead," was given as the title for these few remarks. Recently I saw in the papers, under date of January 24th, 1914, a balance sheet from Oxford County, showing the proceeds from 180 brown Leghorn hens as \$500, the proceeds from 6 milch cows \$500, and I was very much impressed that it was equal in both cases. Looking at a footnote I saw \$200 of that \$500 was secured from hatching eggs. Now that could not have been gained unless the man had been using a pure breed. That is the point I want to bring to you, to encourage, in so far as you are able in your own spheres, the production of pure breeds on the farm, so that the profits may be increased to something comparable

to those mentioned above, to improve the material available for use, and that is what Mr. Roadhouse meant when he referred to improvements that were within human powers; the alteration of breeds to meet the needs. In these cages are specimens of a new breed that Prof. Graham is making at the Ontario Agricultural College to meet the needs of the cold climates—the New Ontario are not ready for distribution yet. Just to remind you practical men of one point. The tender succulent flesh is not characteristic of the hardy breeds. The rare old French races are not suitable for our work in this cold climate, in the north, particularly, we have to use hardy breeds. Prof. Graham is making a wonderful attempt to incorporate the quality of tender succulent first-class flesh on to a hardier race. He has got the table qualities perfectly fixed now, but further work, complicated work, is necessary to establish the high laying powers he deems necessary. Two of the pullets you see represent the larger strain. All the birds you see were hatched on the 26th May in my own yards. This pullet represents the smaller line. Note the contrast. The latter bird began to lay in November. They were all hatched at the same time, yet the larger did not begin to lay until January. This is the sort of work the Deputy Minister meant when he spoke of possibilities within human powers, but we cannot do them on the farm by ourselves.

Can you not do something more at the fall fairs to encourage the utility classes? When speaking to the fanciers in the poultry associations, they ask with a very lofty air, "What do you understand by utility?" You and I know what we mean, but there is no proper definition for such a word. We need the kind of bird in our agricultural shows that have higher vitality, as shown in wide head, sharp beak, bright eye and blocky conformation. Birds of this type help us to supply the delicacies for the home market. We don't want to go into a fall fair or exhibition conducted under your guidance and find the first prize given to an admirable coat of feathers with long shanks, knocking together, long head, thin backed bird, in anything but vigorous condition. We don't want that sort of thing in our agricultural fairs. We want utility features developed and prizes given for it. Our local show gives a medal for the greatest number of points in the utility classes. There are four of them and they have answered very well. One is for a pullet likely to lay in November, and should be divided into two sections, viz.: heavy breeds and light breeds; second, the dressed cockerel; third, twelve brown eggs, and fourth, twelve white eggs. In addition to those should be a class for dressed utility breeding pen. And this medal last September was won by the New Ontario.

I would like you to examine these eggs which are laid by the New Ontarios. Those of you who are interested will realize that a progressive movement is on foot to make a breed in Canada specially for Canadian conditions. This is the only breed of poultry that owes its origin to this country, and when the Duke of Devonshire recently visited the Ontario Agricultural College Professor Graham provided him with a chicken dinner, also all the students. The Governor's table was provided with New Ontarios and he thought it was equal to the finest chicken he had tasted. Now then why do we want to import birds from the south? These mature very quickly. We shall not long need to import early broilers. We can produce more and better here. I cannot take up your time in telling you of other things that are being done. I wanted to draw your attention to something your own College is doing for you, and to urge you to take up the question in utility prizes at the fairs.

In regard to dead poultry, the market demands this at the present time (illustrating birds). That is a nice looking pair of chickens, milk fed, weighing eleven pounds to the pair. The demand is not for a coarse, large bird. I spent

some time in the St. Lawrence Market in conversation with Mr. Mallon's representative, who handles probably more dressed poultry than anyone else, and I got them to tell me what they wanted. This is what they want (illustrating) and you will agree with them that that is a pretty choice specimen of poultry to put on the table or to offer to the customer in February. Bear in mind that these dealers cannot give you top prices unless you will produce what the public wants. From a heap nearby he picked that out (illustrating a very skinny bird). These both came in the same lot. You understand that if you just put in one of the fine birds and twelve of these skinny ones, the price is not going to be as good as it might be. Instruction in these matters at fall fairs would be of great advantage, and would educate the farmers to the knowledge that inferior poultry is going to deteriorate the quality of Canadian poultry.



White Leghorn Cockerel.

This is the kind of duck Mr. Mallon explained to me that is coming in. They want a $3\frac{1}{2}$ to 4 pound duckling— $3\frac{1}{2}$ they like best, plump and in good condition. Here we get the terrible thing that is coming in by the hundred (illustrating very skinny, inferior bird), and what can a man give for that when he is buying. When I was paying the bill I told him I was going to use it in connection with the Department here and Mr. Wilson would not want to pay too high a price, so he said to his man, "Oh, if she is going to use it for educational work chuck it in, give it to her."

Then about canning. Canning chicken is something we can do well. We have an excellent recipe for pure canned chicken which is done at the Macdonald Institute, Guelph, and they were good enough to send me the recipe for it, and I would like to have it printed under the heading of "Dead Poultry."

I have probably taken up a good deal more of your time than I should have, but where is the general public going to get its instruction if not from you? You are the connecting link between the Agricultural Colleges and the general public. You should look upon yourselves as the medium through which the information to

the general public is given out. My message to you is, that you make yourselves count for something on your fair boards. What good are you? Ask yourselves that question, what good am I doing on that board? Get into the game, lead, push, shove, lift, but don't be a leaner.

The following resolutions were passed:

Moved by DAVID EVANS, and seconded by R. M. TRUMAN: "That the prize winners in the Field Crop Competitions be compelled to exhibit at the Local Fair a sheaf or bushel of roots. If the Fair chooses to give prizes for the same, that the prizes won in the Field Crop Competitions be retained until the rules are complied with by exhibitors at the local fairs." Carried.

Moved by J. J. JOHNSTON, Fordwich, and seconded by W. J. CONNELLY, Cobden: "That owing to the fact that the Mitchell Fair Buildings were destroyed by fire during the progress of the Fall Fair, and that the gate receipts were cut in



White Orpington Hen.

half by the same, we would humbly ask this Convention to endorse a petition to the Government, asking for a special grant from them, to help to erect a new Fair Building." Carried.

A MEMBER: Did any of the Societies pay a war tax this year?

J. LOCKIE WILSON: We have been written to by a number of Societies asking whether it would be necessary to pay a war tax on their tickets. I consulted with Mr. Bayly of the Attorney-General's Department, and he informed me that an Agricultural Society's gate receipts were exempt.

A MEMBER: I sent \$64 of a war tax to the Treasury Department and they accepted it. I wanted to know if any other Societies had paid this.

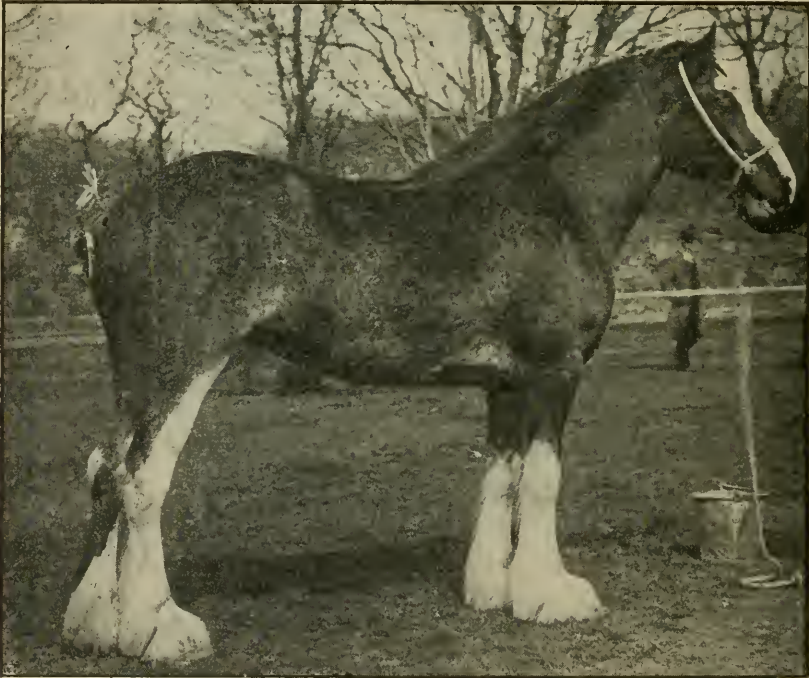
J. LOCKIE WILSON: If any of you under a misapprehension paid a war tax, if you will write me a letter stating the facts, I will have the matter brought before the proper authorities.

A MEMBER: In regard to Field Crop Competitions, while we in our township believe that they are a good thing, yet there are many who believe they might be made a little more educational if the judge at the close of his work would explain why one man won a prize or why another did not.

J. LOCKIE WILSON: Many Field Crop competitors do not understand clearly that time is the essence of a judge's contract. The fields in the Societies he is required to judge, in many cases, become ripe about the same time, and if the judges, as suggested by the speaker, were to stop to go into full explanation with the 20 or 30 competitors in each Society, many of the fields would be cut before he could possibly reach them. Every competitor receives a copy of the complete scores from which he can readily learn where the weakness was in his field.

QUESTION DRAWER.

Q.—Would it not be better immediately after the judge had summed up and made his award to forward a copy of every competitor's score to the secretary of the Society and the secretary in turn forward it to the competitor?



Clydesdale Filly.

J. LOCKIE WILSON: The judge requires time to go over his scores carefully and he is instructed to leave the names of the five prize winners with the secretary who promptly advises the winners to prepare their sheaf and grain exhibits for the Canadian National and Central Canada Exhibitions. He would not have time to arrange and hand score cards to every competitor before leaving the locality.

Q.—Is there no way that the law can be changed so as to remove the liability from directors for accidents that occur at fairs?

J. LOCKIE WILSON: The only way is to have the Act amended.

Q.—Can a town under the Transient Traders Act stop a fair allowing the sale of fruit on the grounds the day of the fair?

A.—No.

Q.—Do you think it advisable to have a new president elected each year?

A.—Did you ever hear of a bank president being dismissed at the end of a one year term. If the president proves to be an efficient officer, and is doing his work to the satisfaction of all concerned, why should he not remain in office. The idea of passing this honor round to incapable men is a bad one. When you get a first-class business president retain his services.

Q.—Is it advisable and in the best interests of the Societies represented here to elect a District Representative who is not present?

A.—This is a matter that should be left entirely to the delegates of the district.

Q.—Should cheques handed out by the treasurer be countersigned by the president of the Society?

A.—All good business institutions do it. I think every cheque signed by the treasurer should be countersigned by the president. Remember that if the treasurer uses your money illegally you are personally responsible for it as a board.

MR. ANDREW BRODER AND THE SENATE.

Moved by J. E. MONTGOMERY, S. Mountain, seconded by W. J. CONNELLY, Cobden: That the Ontario Association of Fairs and Exhibitions, including representatives from all parts of the Province from Glengarry to Kenora, desire to draw the attention of the Dominion Government to the eminent fitness of Andrew Broder, M.P., for the seat now vacant in Eastern Ontario in the Dominion Senate, and respectfully request that he should receive the appointment thereto.

“The public career of Mr. Andrew Broder, not only in the political sphere, but as a representative agriculturist of high mark, is too well known to require eulogy.

“The last two appointments to this seat, we understand, have been professional men, and we feel that these honors should be passed round.

“In his personal capacity it would be hard to find a man who is so universally respected and admired as our nominee, and we conceive that in making this appointment Mr. Broder will be not less honored than the Dominion Senate itself.

“We are assured that the appointment of Mr. Broder will be satisfactory, not only to the business men, but to the entire agricultural community of the Dominion.

“And that a copy of this resolution be forwarded to the Right Honorable R. L. Borden, Prime Minister of Canada.” Carried unanimously.

SUGGESTED IMPROVEMENTS IN FIELD CROP COMPETITIONS.

DR. C. A. ZAVITZ, GUELPH.

When the competitions in standing fields of grain were established in 1907 they were to be judged in the fall before the harvest from the standpoint of *utility for seed purposes*. While it has been the object in the Field Competitions in Ontario during the ten years in which they have been in operation to encourage better methods of farming, the one main object throughout has been *the production of seed of high quality*. The work has been developed from a small beginning to an extensive system which now reaches into practically all of the counties of

Ontario. It has enlisted in its co-operation hundreds and even thousands of the leading farmers of the Province. I believe it requires no argument to prove that it has exerted a most wholesome influence on the crop production of Ontario. The question for us to consider at this time is the possible improvement of the Standing Field Crop Competitions in such a way that they will accomplish even greater good in the future than they have in the past.

For several years the men selected as judges for the Field Crop Competitions have met each year for a two days' conference. These have undoubtedly accomplished much good and have enabled the Superintendent of Agricultural Societies, the judges of Field Crop Competitions and the officials of the experiment stations to discuss those questions of deepest concern in the development of the work. Changes have been made from time to time with the object of increasing the usefulness of the system. I have been asked to present to you what seems to me to be still further improvements in the work of the Standing Field Crop Competitions. It is a subject rather difficult to present in a satisfactory manner. One can sometimes see where weaknesses exist and where improvements might be made, but to suggest the best methods of bringing these improvements about may present a difficult task. I venture, however, to present a few points for your consideration with a hope that some good may result therefrom.

In consideration of the fact that the production of pure seed for the farmers of Ontario is at the very foundation of the work in Field Crop Competitions, I would suggest the following improvements in the present system:

1. The reduction of the number of varieties of farm crops grown in the Province to a comparatively few of the very best kinds.
2. The information for the farming public of the amount of seed which each competitor is likely to have for sale.
3. The information for the farming public regarding the freedom from certain weeds of a noxious character in the field crop of each competitor.
4. The presentation of this information in time for farmers to buy and sell seed as early in the winter as possible.

In regard to the reduction of the number of varieties, a process of elimination is constantly but slowly going on through the regular annual competitions. The tendency is for the best varieties to score high and the poorer varieties to give a lower score. Unfortunately, some comparatively poor varieties in yield and in quality make a good appearance in the field. Another discouraging feature is the number of agents representing American firms who go from house to house selling new varieties or old varieties under new names in small quantities and at high prices. These introductions tend to multiply varieties. The Agricultural Societies should do as much as possible to discourage the growth of poor varieties and of those which have not been thoroughly tested in the Province and to encourage the growth of only those of known merit.

The amount of seed which each competitor is likely to have for sale could be ascertained quite readily by securing information from the competitor in the late fall or early winter and in sufficient time for both the annual report and the winter fairs.

The kinds of noxious weeds in each field entered in competition are noted by the judge in every instance. If this information could be incorporated in the annual report in connection with the score of each field it would prove of very great value to farmers wishing to buy seed.

The presentation of this information to the farmers of Ontario in ample time for them to buy seed of selected varieties and of known quality would be of decided

advantage to both the buyers and the sellers, and would make the work of the Agricultural Societies of much greater influence.

I believe there was sufficient good seed of farm crops grown in Ontario last year to meet the needs of the farmers for the coming spring. The Agricultural Societies through the Field Crop Competitions could do much in making a closer connection between those who have grain for sale and those who wish to purchase their seed. Surely, out of the seventy million bushels of oats which were produced in Ontario in 1916, there are at least five million bushels which would be quite suitable for seed purposes. This would only mean one bushel of seed out of each fourteen bushels of oats produced in 1916. Why should the farmers of Ontario find it necessary to purchase any No. 2 Canadian Western seed oats which may be a mixture of any kind of white varieties, consist of only ninety-five per cent. of white oats, and which may contain up to eight wild oats in each pound of the grain.

Something is sure to be done to improve seed grain conditions in Ontario in the near future. I strongly advise the Agricultural Societies to arise to the occasion. This forms a great opportunity for exceedingly valuable work through the Field Crop Competitions. The work can be accomplished. Are the Agricultural Societies equal to the task? The future alone will show.

ADDRESS.

ANDREW ELLIOTT, GALT.

In my fifty-eight years of platform work I have never been brought face to face with an audience that was more representative than that I am addressing now or one with a larger degree of intelligence.

I am proud to-day that I am one of the few who remember the first sixteen that met together when this Association was first formed, but bear in mind that just as the years come around there also come new duties and new difficulties to be grappled with, and we are on the verge of a time when we have got face to face with difficulties which a few years ago you would have thought insurmountable. We hear a good deal about the prosperity of the Ontario farmers, and in all my sphere of work I have never seen anything like the home life of Ontario. The Ontario farmer values his farm for more than the monetary value, more than the business end of it, because it is the home where he was reared. It is sometimes underestimated what those early settlers did. The sons or the grandchildren of those early pioneers are not required to submit to the poverty and hardships that their forefathers did.

What are we going to do to-day for the great period of reconstruction which is going to come after this war is over? We hear a great deal about the prosperity of the farmer. Well, they deserve it. There never was an implement made that did not require brains to run it. You now have your mowing machine and your high class farm machinery, but those things will not work themselves. I do not know what the conditions are elsewhere, but in our part of the country there were fields left last year in spite of the splendid hay weather, simply because the farmer was not able to obtain help to cure it. We are handicapped in many ways. It is no use bringing townsmen out to our farms, because it costs us more in broken implements and broken tempers than they are worth to us. I do not wish to speak ill of the manufacturer, but it seems to me it is altogether a onesided business.

A few years ago one came out and in driving past our farm stopped and spoke to our hired man, asking him to come in and work in his establishment. The man said he did not wish to go as he was comfortable, but he coaxed him, offering him great inducements, until the man went.

When this reconstruction period comes along we are told that this Dominion of Canada will be peopled with farmers. What are they going to do with the product of those farms? They will have to export. Can we in Ontario, can we in Canada, under the present conditions meet the other nations of the world in export products? We must not blink at the fact that we are going to be seriously handicapped on account of market facilities. The yield of wheat in the Western Provinces has to be sent across the country at a great deal of expense. In a few years we must meet the competition of Central Europe, of the Argentine, Russia and India, countries which have economy of production and marketing down so fine that it will be impossible for us to compete with them. The only thing in my mind is this, that we must produce a better grade of goods. If we cannot make our superior intelligence a marketable quality in producing something better than others, we are bound to go to the wall. I can to-day go into places within sixty miles of the City of Toronto, remove the buildings and you would not get \$20 an acre for the land. There is something radically wrong when you find that this is the case in Ontario. I can go to Michigan and find that land is two and three times as valuable and I can go out to South Dakota and Montana and I find the same is the case. I hope that the time will come when we Ontario people will have the possibility of getting from the land more than we have ever done before. We have in Ontario the best agricultural land.

INCREASING ATTENDANCE AT FAIRS.

A. R. G. SMITH, NEW HAMBURG.

There never was a time in the history of Ontario when more attention should be paid to agriculture in all its branches than at present.

As Agricultural Societies we are interested in stopping the tide of migration from our rural districts to urban centres.

As a result of investigations made by one of our members we inaugurated and carried out and still have yearly competitions for the improvement of our schools, for we recognize that as half the waking hours of a child's life is spent in school, Sir George Ross was right when he said that the schoolhouse should be the most attractive place in the section.

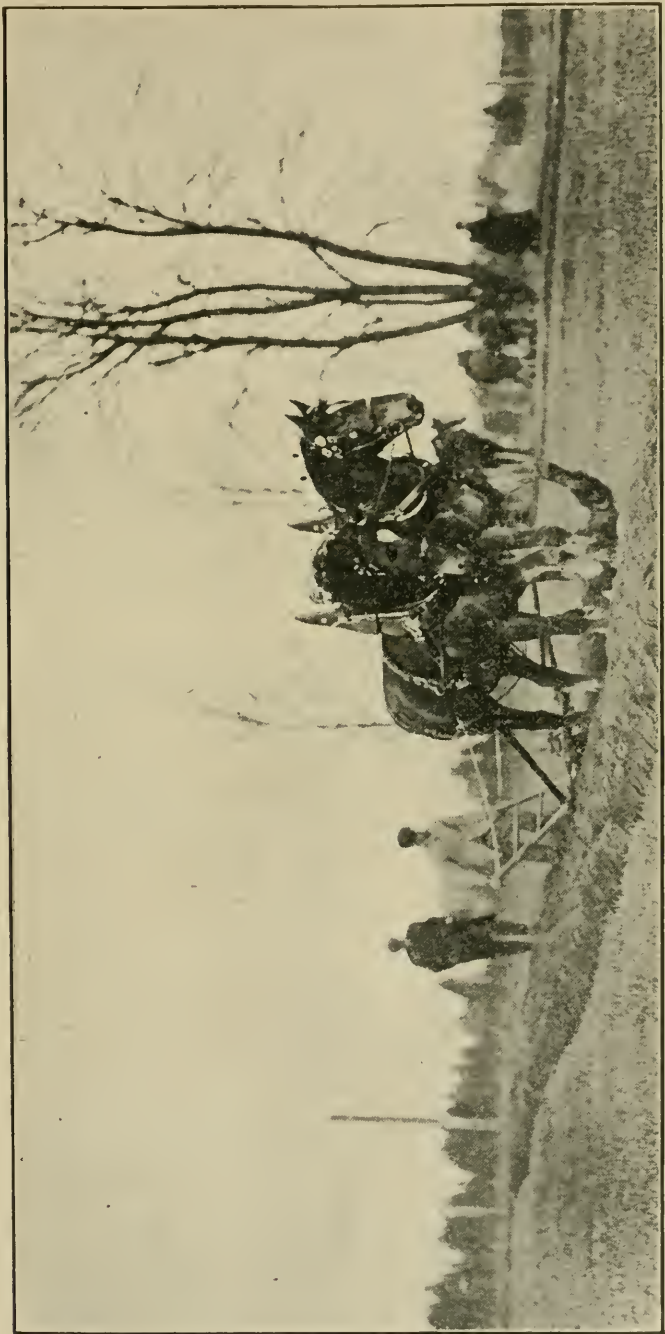
We found that our Agricultural Societies might be improved and their work might be more efficient.

We felt that they might be a medium to teach the boys and girls of rural districts the dignity and interest of their occupation.

We made an effort along these lines, as many of the directors of our Agricultural Society are members of the Board of Agriculture and are interested in the improvement of rural conditions.

We carefully considered the rearrangement of our prize list to keep it attractive and properly balanced.

In modern times the art of breadmaking is important. We have eight competitions and a sweepstakes for the best loaf. This competition we find interesting to our thrifty housewives.



At the Ploughing Match.

Live stock is important. We doubled our prizes. I think it was Peter McArthur who was at a fair and saw two hundred automobiles and one red cow.

We appealed to our County Council for larger grants so we could offer more money to encourage this very important industry now sadly neglected in Ontario. Be it said to the credit of that body of progressive men that they gave us three times as much last year as in 1915.

We consider it important to pay attention to our farm boys and girls in our agricultural plans. Great attention is paid by the civilized world to the education of the child. Impressions of youth are not readily forgotten. We, therefore, arranged our prize list for children's work. A Toronto hotel gives one day's accommodation to the boy winning the Boys' Horse Judging Competition, and Miss Wilkes donates a prize for the best girl driver under eighteen, and Sir Adam Beck one for the best boy driver of the same age. We have competitions for the exhibits of schools and children's competitions in art, writing and nature study.

We considered the matter of getting the boys and girls to our exhibition. Our Directors have lately thought that we should arrange to have all school children interested in Agriculture. We went to the Township Council of Wilmot and, recognizing the good work we were doing, they increased their grant from \$50 to \$100. Last year we appealed to them to increase our grant again to \$150 and we would give a complimentary ticket to every school child between the ages of 8 and 14, and to the school teacher. We have 18 schools and 750 children. This met with their approval. On the ticket the child's name is put and it is signed by the teacher.

SAMPLES OF TICKETS.

School Pupil's Complimentary Ticket

WILMOT AGRICULTURAL SOCIETY

FALL FAIR, SEPTEMBER 14-15, 1916

Name.....

Teacher.....

PRESENTED BY NEW HAMBURG COUNCIL

School Pupil's Complimentary Ticket

WILMOT AGRICULTURAL SOCIETY

FALL FAIR, SEPTEMBER 14-15, 1916

Name.....

Teacher.....

PRESENTED BY WILMOT TOWNSHIP COUNCIL

The town of New Hamburg had previously increased the grant and last year increased it again by \$30.00, besides doubling their private subscriptions. The town children were also presented with complimentary tickets.

This system gives the children a knowledge of the men who comprise their Council.

We do not believe in a system of free admission. There is no dignity to it.

We were pleased to have the orphans of the St. Agatha Orphanage as our guests. The little unfortunates enjoyed themselves as some of our directors with big hearts gave them all a ride on the Merry-Go-Round that we had as an attraction for everybody.

We found that the complimentary ticket to the child brought out the parents. Though we did not have good weather we broke our gate receipt record by \$120.00.

We believe in advertising. The large lithographed posters with a full printed programme of attractions have an important place in drawing the attention of the public.

We inserted a \$2 advertisement in 14 local papers and issued 1,000 invitation cards to be sent over our rural routes. These cards contain a summary of what people may expect to see at the show. We find this condensed system of card advertising saves expensive prize lists.

SAMPLE INVITATION CARD.

The Wilmot Agricultural Society

Extend a cordial invitation to attend their

ANNUAL FALL FAIR

AT NEW HAMBURG

SEPTEMBER 14 AND 15, 1916

SOME OF THE SPECIAL ATTRACTIONS

Complimentary Ticket to school children.
Palmer and Connelley's Merry-Go-Round.
Boys' Horse Judging Competition.
Boy Driver, under 18.
Six successive jumps for saddle horses.
Girl driver, under 18.
Three Plows for Team prizes.
Tug-of-War. Rural Districts vs. New Hamburg.
Art, nature study and map-drawing for school pupils.
Ribbons for Horses.
School Exhibits Competition for teacher's chair.
Two silver trophies for Beef and Dairy Herds.
Eight Competitions in Bread. Sweepstake loaf wins \$4.00.
Poultry Show on evening of Sept. 14th.
Baby Beef Competition, 1st prize \$10.00.
Fast Driver, \$15, \$8, \$5, \$3.
Gentleman's Driver, \$5, \$3, \$2.
Music on evening of Sept. 14th by Band and Orchestra.

I will be pleased to distribute these cards and childrens' complimentary tickets to any of you who happen to be interested.

I wish to appeal in a larger, as I have in a smaller, way to various councils. I appeal from this public platform on behalf of 250,000 boys and girls going to our rural schools, to you as representatives of the Agricultural Societies, to the Department under the guidance of our Superintendent, to the representatives of the modern power, and to the public press, for publicity to this appeal. I hope to see the day when this system will be general. There is much to be done to improve rural conditions, and too much cannot be done to develop along the sidelines and concessions of Ontario the highest type of young Canadian citizenship—the boys and girls, the future home makers of this great Canada of ours, once described as a few acres of snow, now recognized as the best half of the world's best continent.

We think Agricultural Societies should show their interest in work of this kind. Rural problems should be solved by rural organizations. Let us work together to improve agricultural conditions in Ontario. Prospects were never brighter for the agriculturist than now. Prospects of hydro-electrical development mean much to the future of farm products. We may fittingly apply the words of our esteemed Superintendent's favorite poet. The words that would apply changed a little might be.

"Ontario, my own dear native soil
For whom my warmest wish to Heaven is sent,
Long may your sons of rustic toil
Be blest with health and sweet content.
Then howe'er crowns or coronets be rent
A virtuous populace will arise and stand
A wall of fire round our much loved land."

REPORTS OF DISTRICT DIRECTORS.

District No. 1.

J. E. MONTGOMERY, South Mountain, Director: The attendance and interest in fall fairs in my district seem to have been maintained at every fair that I visited. Some of the fairs report the most successful year in their history. This, I believe, is partly due to the fact that automobiles make it easy for farmers to reach a fair from considerable distances. Many farmers now own autos and take the day off to go to fairs that were considered too far away to drive to in a carriage. It was quite common to see from 150 to 200 cars at a fall fair last year.

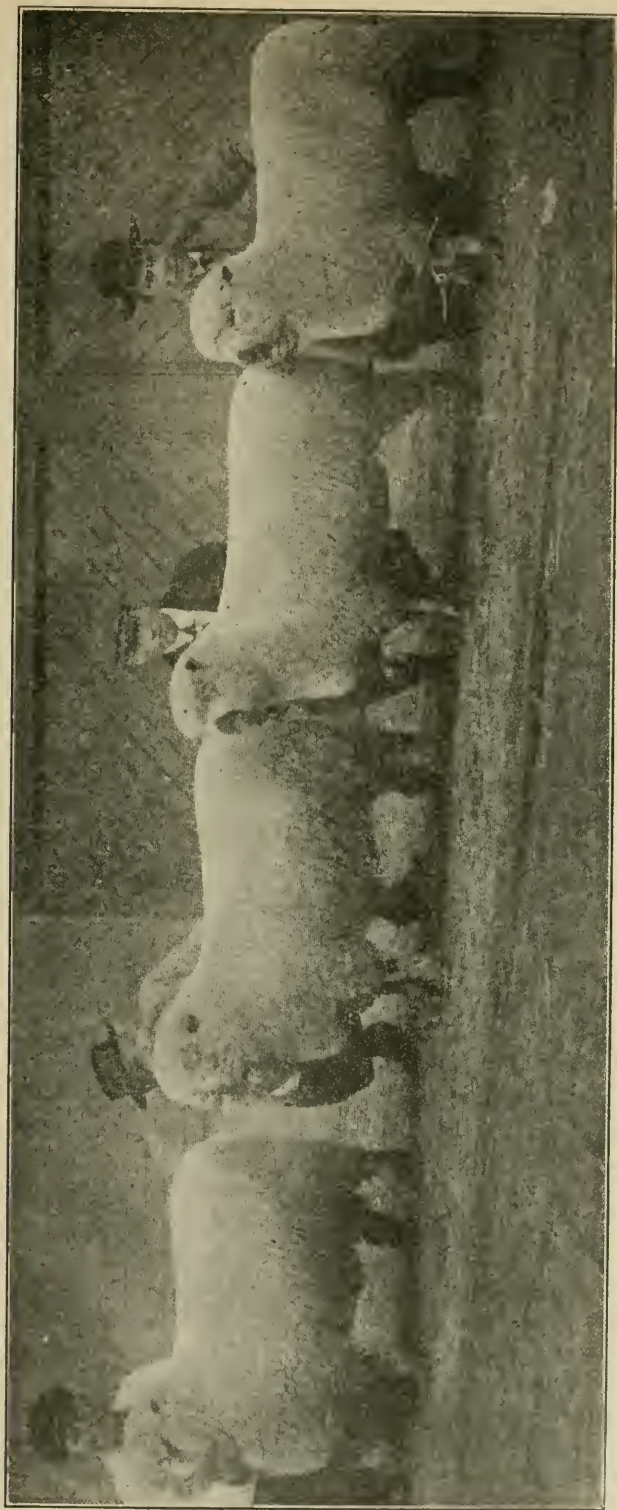
The different live stock departments of the fair were well up to the average in numbers. Dairy cattle form the largest exhibit at our eastern fairs. A dairy test was conducted by a few of them and proved to be an interesting feature and well worthy a place on any fair programme.

Sheep and swine exhibits are not numerous in this district. The prizes given are generally not large and people do not consider it worth while to bring them out.

In the horse classes the light horse is most in evidence. The draft horse, however, is being more largely represented from year to year.

The grain and root exhibits this year were not of as good quality as in former years, owing to the very bad season.

The ladies' work in cooking and sewing was well represented. They are an important feature and should be encouraged by every Fair Board. They are an interesting feature to the ladies attending the fair.



Shropshires.

The Field Crop Competition has accomplished a great deal in my district in the way of encouraging better farming. Every Agricultural Society should conduct one or more of these competitions.

The school fairs are flourishing and creating a great deal of interest among old and young alike. The one at South Mountain last year was attended by over 1,500 people and the exhibits were a credit to the children. A very enjoyable day was spent by everybody.

The fall fair has a place in the building up of our agricultural industry. We should endeavor to keep them up to a standard where they will be regarded as the important event of the year in our districts.

District No. 2.

W. J. CONNELLY, Cobden, Director: Twenty-five Fairs were held in this District, far too many to be under any one director, especially when they are held over four large counties, like Frontenac, Lanark, Leeds and Renfrew. As the Association of Fairs is growing in usefulness, it is about time there were some steps taken to divide the Districts, and have more Directors. I visited as many fairs as possible in our District, and got a warm reception at every place. I find that interest is growing everywhere. The weather as a whole was very favorable, and all claimed to have a larger attendance than in previous years. Owing to the unfavorable year for Grain, Roots and Fruit, the exhibits in these lines were not as good as in the previous years, but large numbers of live stock were entered, which were in good condition.

I would like to say here, that one of the most pleasant events I attended in my work during the year was the annual banquet given under the auspices of the Agricultural Society of Kingston. Everything was arranged in good order by their popular manager, Mr. R. J. Bushell, and their President, Mr. J. A. Wilmot. There seemed to be a very warm co-operation between the Managers, Directors and members, which is bound to make a success of any Fair. I would strongly recommend other Societies to do something along the same line. For instance, the Cobden Agricultural Society holds an annual Demonstration on May 24th, and in that way makes quite a little money for improvements for their fair grounds.

The Field Grain Competitions are still one of the leading features in our District, and I am more convinced than ever that it is doing a great work by encouraging the farmers to grow good clean seed.

I tried to get the Societies in each county to advertise the dates of all the Fairs in their own county on their bills, but only partly succeeded. Renfrew County took it up and it was a great success. It seemed to bring about a spirit of good fellowship between the different societies, and wherever you saw a bill you could find out the date of each fair in that county.

District No. 3.

J. E. JOHNSTON, Tweed, Director: In District Number Three, composed of Hastings, Lennox and Addington, Durham and Northumberland, and Prince Edward Counties, there are twenty-six Agricultural Societies; eight of which I had the pleasure of attending last Fall, and I found each in a good condition, and each officer did his utmost to make his Fair the best.

In my opinion, the chief duty of each officer, and in fact each member of each

Society, should be to put forth the best effort to make the Fair an instructive event, as we know that during the past, through the keen competition, our people have been led to realize what may be done along these lines, and if accomplished by one person can often times be excelled by some one else.

At several of the Fairs at which I attended, I found the officers in favor of curtailing some of the money used in Speed Events, and placing it on other lines that would be more in keeping with the real spirit of Fairs, viz.: the betterment of all agricultural products. One way to accomplish this would be to have a mutual agreement between the officers of the different Societies in the District to limit the sum for Speed Events to a certain percentage of the total money offered.

One regrettable feature of our Fairs is the liberty taken by "fakirs" on our grounds, as some of these are very closely allied to questionable pursuits that often times it is not very easy to keep them in proper bounds, for each officer as everybody knows, has his hands full on that particular day.

We must not overlook the part the ladies of this District take in our Fairs, for in each Society I found many lady members, and in every instance each contributing her share to the Fair's exhibits, as well as taking a very active interest in the general welfare of the Fair.

In nearly every case, the exhibits were as good as in previous years, notwithstanding the unfavorable season; although there was a slight decrease in the number of exhibits, caused, as explained by all exhibitors, by the lack of help to bring out their exhibits.

At the majority of the Fairs we were favored with good weather, and the attendance in general was considerably in advance of previous years, attributed, in a great degree, to the many automobiles in our district, which allow visitors from a great radius to attend the various Fairs.

It seems in this District, that people have not wearied of the Fairs: they seem to be more greatly attracted by them than ever before, and nearly every attendant looks forward to the Fairs as days of recreation as well as days of education.

Any one attending the Fairs of this District, cannot but notice the evidence of prosperity of its farmers, most of whom are availing themselves of many of the better methods available for the enjoyment of life.

I wish to thank the Officers and Directors of the different Societies throughout this District, for the courteous and hospitable manner toward me, and trust the succeeding year may bring peace to the great nation of which we form a part, and greater prosperity to each Society of this District.

District No. 4.

E. HAWTHORNE, Warsaw, Director: Interest in exhibitions is shown by an increase in attendance, in the high class of exhibits, and, if the automobile indicates prosperity, the country is getting very wealthy indeed. Roots, grain and vegetables were not up to the standard of previous years, but live stock generally were superior to that of former years, especially in our smaller exhibitions, and, considering the value of exhibits in live stock and the cost of preparing them for the show, the prizes offered should be increased. The small fairs have not the advantage of large fairs in the matter of gate receipts, by having a night exhibit, yet I venture to say they are accomplishing more stable work than their official returns would indicate.

Some of the things nearly all our exhibitions lack is seats for the mothers and older people, trees for shade, and last, but not least, a better lavatory system.

A large amount of money has been raised at exhibitions in connection with our Red Cross work.

In District No. 4 we have live stock societies. These are placing pure-bred males in localities where conditions were of such a nature that farmers were satisfied with the scrub. I am pleased to say there is a marked improvement in the quality of live stock, and good work is being done by these societies.

Field Crop Competitions are of importance in producing better crops by more thorough cultivation, and the eradication of weeds, and should be taken advantage of by a greater number of competitors.

The interest in School Fairs under the supervision of the District Representatives is on the increase. Whether they will supplant the older fairs it is too soon to say. If they accomplish what they are designed for, to increase the love of boys and girls for the farm and its products, they should be encouraged. The keen interest taken by the pupils is a good indication that this is being accomplished.

At some of the larger fairs, the Government gave an exhibit in miniature of conditions and appliances on the farm. These demonstrations, I have no doubt, have done a lot of good, and should be continued.

The rural communities are receiving a lot of advice from the cities in regard to their duty as producers, and the part farmers' wives should take. We are quite sensible to the situation, and accept the proffered advice with as much grace as possible, and hope, ere another convention of fairs and exhibitions takes place, that victory will be ours and a lasting peace be proclaimed.

District No. 5.

GEORGE DOWNEY, Bolton, Director: Notwithstanding the drain of men for enlistment, the Fairs in our district were well attended. The weather in most cases was all that could be desired. The exhibits, however, were not quite so good, especially the grain, roots, vegetables and fruit. Some of the live stock would also have been the better of more fitting, owing no doubt to the peculiar season, and the scarcity of labor. The labor problem with the farmer will be more acute this year than ever.

The Field Crop Competitions seem to be growing in favor, resulting in the destruction of more weeds than formerly, and much improvement in good seed grain.

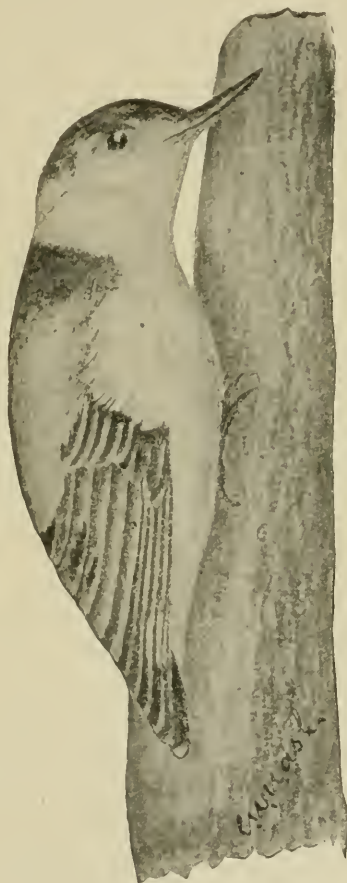
District No. 6.

J. WILLIAMS, Marshville, Director: District No. 6 is comprised of the Counties of Lincoln, Wentworth, Haldimand and Welland, known as the Niagara District, famous for its orchards, fruits and excellent farming land. I visited a number of the fairs throughout the district, as opportunity presented itself, and am pleased to report success and progress in almost every instance. The officers and directors all appeared to be working together to make their fairs the success which they ought to be.

I called a meeting at Hamilton on May 10th, for the purpose of furthering the movement which the Director for 1915, Mr. T. Moyer, had started in regard to the formation of a District Committee to act in conjunction with the Provincial Repre-

sentative of Fairs in the framing of a uniform system of admission tickets and entry fees, arranging of dates so as to avoid clashing, and to introduce a new and economic method of advertising, and securing judges from the O.A.C., Guelph, to give demonstrations in judging of poultry products and on packing fruit.

Owing no doubt to the rain, the meeting was not as well attended as desired. However, an interesting time was spent in general discussion of the different subjects, as well as listening to some good thoughts and advice from W. J. Bell, of Toronto, on the various subjects under discussion.



White-breasted Nuthatch.

The School Fairs throughout the District were all reported as being a great success, especially those in Welland County, where the greatest enthusiasm amongst the children prevailed.

I wish to thank the officers and directors throughout the district for their kindness and hospitality extended to me during my term of office.

District No. 7.

GEO. L. TELFER, Paris, R. R. 2, Director: Another year has passed since we met here, a year of great difficulties and perplexities. We are still fighting for the principles laid down by Great Britain and her Allies, the struggle has been long and

6 A.S.

serious, and the end is not in sight, yet we are firmly convinced that we are in the right, and being in the right we must fight on until victory has been achieved. Better to die struggling for liberty than live the life of a slave. And thus, to some degree at least, our country, along Agricultural lines, has had a difficult time during the past year. The early part of the season was unduly wet, resulting in the greatly reduced acreage of grain and hoed crops, although hay was abundant. Harvesting weather was ideal, and naturally the Fair Boards of our Province looked forward to their fall gatherings with somewhat anxious feeling, but we are pleased to report that while conditions have not been favorable, yet the fall fairs have been a great success in most cases.

It was not my privilege to be present at many of the Fairs in District Number Seven, yet all report a favorable season. Much interest is being taken in the Children's Department, and this is as it should be. If we get the children, we are sure of their parents, and in this way we have a growing interest in the fairs. We are more convinced than ever that the country and district fairs have a very important place in the advancement of Agriculture.

The movement which was started a few years ago to have standing crop competitions, has resulted in a great good, both from the fact of getting better and more grain, but also in cleaning our farms from noxious weeds. I am satisfied that no movement has done so much for the farmers of our country as the standing field competitions. We are also pleased that the entries in the different lines of live stock have increased, showing that more are being interested in this very important line of Agriculture. We are looking forward to another year of continued prosperity for our Fairs, and for those engaged in Agriculture. We believe that this is the basic industry of our Province, and on it depends whether our sister industries shall continue to advance.

District No. 8.

J. H. JOHNSTON, Fordwich, Director: I am representative for District Number 8, composed of the Counties of Huron, Perth, Middlesex, and Elgin, the banner counties of the Province, especially the County of Huron, which gave birth to Eddie McKay, England's greatest airman.

I had the pleasure of visiting eight agricultural fairs. At Strathroy they have a beautiful main hall and gave a grand exhibition of all classes of ladies' work, especially useful articles made out of wool and rags, in the form of slippers, skirts, rugs, etc. In another fine building there were on exhibition fruit, vegetables and roots of a very high quality. There was also an excellent display of cookery of all kinds which did great credit to the ladies.

The specially built building for flowers and plants was a beautiful sight. In the up-to-date poultry house the exhibition of poultry was of a very high quality.

The sheep and hog pens were somewhat lacking and were what might be called old-fashioned. Interest in this department was not in keeping with that in the others. There were some good animals, but, generally speaking, they were not well fitted for exhibition.

The cattle were plain, with the exception of one herd of Polled Angus, which was a credit to the owner.

The horse show was very good, and there was a good parade of all prize animals on the race course in full view of the grand stand.

The races were good, but, personally, I believe that they should not be part of an agricultural fair, as they draw the attention of the people from the educational features of the Society and tend to defeat the main object of the fair.

At St. Mary's one of the most attractive features was the parade of one thousand school children, who marched from the school building to the exhibition grounds, which were about one-half mile distant, their object being to learn about agricultural work.

There was a magnificent exhibition of everything that was in their main palace, the plan and order being perfect.

The ladies' work, such as baking, far exceeded the work of the men. The live stock was very good, but they were too much scattered. I would refer to one specific case. There was one bull which was the best I saw at any of the exhibitions, but he was located in a far away corner, practically hidden, and very few people found him. Those who failed to see him missed a very great part of the fair.

At Stratford I found everything in general up to the standard. I visited it on the first day of the fair. Stratford can boast of having a most beautiful building, and what was placed on exhibition was of a very high character and most attractively arranged. The fact might be mentioned with reference to this exhibition, also, that the work of the ladies was superior to that of the men.

At Mitchell the exhibition was first-class, and it would be a difficult matter to improve upon it. Every department was up to the mark, and this is to be said in praise of the president and his staff; and judging from appearances they must have more lady directors than any of the other societies.

It would be unworthy of me, as representative of District Number 8, were I to fail in lauding the work of the public school children of a certain school which stands some few miles from the town. Their display of farm produce, such as potatoes, carrots, onions, beets, etc., was praiseworthy in the highest degree. The flowers, of every variety, stirred up in one the deepest sense of appreciation. These were all prominently displayed in the main building, and it must be remembered that everything exhibited was grown on the school grounds, and solely by the children.

According to my judgment, Mitchell Fair deserves "First Prize."

The Brussels Fair is deserving of much praise in every department. It was a good "all round" fair. Every department, with no exception, was well filled. Good management was exhibited in the eyes of all. Perhaps it is not untrue that the ladies of Brussels' exhibition, while exceeding the men in their good work, exceeded also the ladies of all the other fairs.

Everywhere the greatest of kindness was shown to me, and my privilege and honor are things to be coveted.

At every fair there was evidence of harmony and good-will among the directors. No complaints were heard and lack of profanity elevated the men whose business it is to promote the interests of our Agricultural Societies.

In conclusion I would offer a few words in connection with the Howick Agricultural Society, of which Society I have the honor of being Honorary President.

The exhibition was held at Fordwich. The attendance was good and all departments well represented. The school children were on parade. This fair has been pronounced by a government inspector to be the cleanest agricultural fair in the Province. There is nothing at this fair except what is purely agricultural.

The district meeting was held at St. Mary's on the 26th day of January, which was the largest meeting ever held in the district. There were nearly 100 delegates present, and the meeting was very interesting in character. The Mayor welcomed the delegates and delivered a fine agricultural address. Other addresses, about

twelve in number, were also delivered, Mr. Scarf, of Durham, being the main speaker. The St. Mary's gentlemen provided refreshments at 5 o'clock in the Town Hall, a kindness which was greatly appreciated by the delegates.

District No. 9.

J. B. CLARK, Blenheim, Director: This district includes the Counties of Essex, Kent and Lambton, being three of the banner counties of our fair Province, and I am pleased to report to you that the Agricultural Societies have just experienced a very successful year. Generally speaking, the weather was ideal, and each fair had a large crowd of spectators. Our soldier boys were present at a number of fairs, and, by their military parade and drill, added much to the entertainment and interest of the spectators. Owing to the wet spring in many localities the spring crop was planted very late even on tile drained land. This was followed by extreme heat and drought, which resulted in some farmers having very little produce to sell. In the case of a large number of farmers the financial returns from farm produce is equal, if not in excess, of normal years. I personally know of some farmers realizing \$125 per acre from their bean crop. The sugar beet industry is fast becoming one of the staple industries of this district, another large factory having just been completed in the City of Chatham at a cost of \$1,000,000.

Each of the three counties in this district has a county Association. Mr. John Farrell, of Forest, was instrumental in organizing one in the County of Essex last spring. In Kent we were favored with the presence of our President, J. C. Stuart, who met representatives of the different Agricultural Societies of the county in the City of Chatham and succeeded in organizing what we are pleased to term Kent County Fair Board. A similar organization exists in the County of Lambton.

The Field Crop Competitions are stimulating better cultivation and better selection of seed, which should be the aim of every farmer if he wishes success to crown his efforts.

The past season was not a very favorable one for the fruit growers. The extremely wet spring made it impossible in many cases to spray at the proper time, resulting in a poorer grade of fruit. The drought which followed the wet spring shortened the berry crop very much, and reduced the apples and peaches in size. However, careful growers were rewarded with a fair crop which brought good prices.

The school fairs are increasing in number and the interest shown by the children, teachers and parents is very encouraging.

The outlook for the 1917 crop is very bright, the late fall having been very favorable for plowing and also draining, both open ditch and tiling, and with a favorable spring the seed bed will be in fine shape.

District No. 10.

ROBT. BRIGHAM, Hanover, R.R. 1, Director: It is a great pleasure for me to have the privilege of meeting so many members of the different fall fairs.

This convention is one of the best in the Province of Ontario at the present.

We are also greatly indebted to our President and Secretary for the able manner in which they have carried on the work of our convention and fall fairs in the past. I hope that they may be spared to be able to give us a helping hand at any time.

I am very much pleased to see my friend, Mr. Scarf, elected President, because we both come from the same township and county.

Mr. Searf has been one of our best farmers and breeders of pure-bred cattle, and always took an active part in the fall fairs in our county.

After writing to all the fairs in my division, and upon receipt of their replies, I arranged to have the dates of a few of them changed so as not to conflict with other fairs near by, but later on some of them, where they did not have local option, changed their dates in order to have the exhibit before September 16th. This brought a number of fairs within close range of each other.

The fairs I visited were a grand success, having large crowds and fair gate receipts. The exhibits of horses, cattle, sheep and swine were excellent—not far short of anything they had in Toronto this past year. The exhibit of grain and roots fell short of last year's exhibits on account of the season. It is my opinion that our representative should be elected or appointed for at least two years, as it is impossible for him to visit any more than half of them in one year on account of the district being so large. The counties of Grey and Bruce having some thirty-six fairs altogether, it would keep him busy to cover them in two years.

I hope that this convention will give this matter careful consideration.

If you think it would not be wise to appoint a representative for two years, then I think it necessary to appoint one in each county or an assistant, and then they would be prepared to undertake the work in the following year, as he could visit some fairs that the other one could not and report to the representative, as most of the fairs like a visit from him.

District No. 11.

W. J. HAMILTON, Raymond, Director: I represent three Districts in the northern part of Ontario—Muskoka, Parry Sound and Haliburton. Most of the fairs in these Districts have not been in existence as long as those of the older parts of the Province, therefore, we are anxious to receive all the help we can from the Government. I find that the officers and members of the different Societies are anxious to make their fair a success.

We held our district meeting to arrange the dates for the fairs at Burk's Falls. Mr. John Farrell attended and gave an eloquent address on The Beneficial Results of Fairs in a District Co-operating.

I would suggest that the dates fixed for the different fairs be final, and the dates registered at the Department, then each Society would be sure to send a delegate to the meeting.

It would be better for all the fairs in one district to co-operate in getting out their fair bills and have a list of dates on the same bill for all the fairs of the district, and each Society pay their share of the cost.

The entries of roots and vegetables at exhibitions were not up to the average this year owing to the unfavorable weather conditions.

I suggest that the officers of Societies see that seats are placed in the fair grounds where women and children can rest, as it is very fatiguing for a mother to stand or walk around for hours carrying a baby.

I hope before this Association meets again that this terrible war which is raging may be a thing of the past, and peace, liberty and justice be assured.

District No. 12.

E. F. STEPHENSON, New Liskeard, Director: Mr. J. D. Coleman of Spring Bay and myself are the Directors for this District, which comprises all the territory

north of the C. P. R. with Quebec and Manitoba easterly and westerly boundaries, respectively. The district also includes the islands of Georgian Bay. The district should be divided into three. There are at present over thirty Agricultural Societies in the district, and for several years this district has obtained the highest marks given in standing Field Crop Competitions in potatoes and spring wheat. Take last year (1916) for instance, the most westerly part, Kenora, scored 95 per cent. in potatoes, the highest given in Ontario, while the most easterly part, Temiskaming, joined the honors with Renfrew at 92 per cent., and at the recent Winter Fair, Ottawa, Temiskaming took the first prize for two bushels of spring wheat.

I am sorry my associate director, Mr. Coleman, is unable to be here on account of illness, but he is strongly in favor of the division and has mapped the proposed boundary lines.

Both Mr. Coleman and myself visited as many fairs as it was practicable for us to visit, and we both report that for the most part our fairs are conducted in an up-to-date manner. Some Societies have ladies on the board of directors, and have school children's fairs in connection, and at the same time agricultural fairs are held. New Liskard Society and the Women's Institute work together as follows: The Society allows the Institute \$150 to be expended in school children's prizes. The women arrange their own prize list, make the entries and hand to the treasurer a list of the children entitled to prize money. The treasurer pays the prizes and the Society takes all the gate receipts. Both fairs are held in the same building.

This most successful Convention then closed with everyone singing heartily, "God, Save the King."

AMENDMENT TO THE AGRICULTURAL SOCIETIES' ACT.

The section of the Agricultural Societies' Act relating to grants to Societies suffering loss in gate receipts owing to wet weather has been amended so that such Societies will now receive seventy-five per cent. of the loss instead of sixty per cent. Provision has also been made so that Societies whose buildings have been destroyed by fire or storm on the days of holding of an exhibition or within thirty days previous to same, whereby the gate receipts were affected, shall also receive a grant on the same conditions as if the loss had been due to wet weather. The amendment is as follows:

"If the Superintendent, on or before the thirty-first day of October in any year, receives proof by the joint affidavit of the president, secretary and treasurer of an Agricultural Society that rain or snow has fallen at the place of holding an exhibition before three o'clock in the afternoon on any day during which such exhibition was held, or if during such exhibition or within thirty days previous to same one or more buildings on the exhibition grounds have been destroyed by fire or storm, and upon the Superintendent being satisfied that as a consequence of such weather or fire conditions the gate receipts were less than the average of three previous normal years of holding the exhibition, such society shall be entitled to receive a grant from the fund provided therefor equal to seventy-five per centum of the difference between the gate receipts of the current year and the average of the gate receipts of three previous normal years, but the amount to be paid to any one society shall not exceed three hundred dollars and the total amount so paid to all societies shall not exceed ten thousand dollars."

NEW LIVE STOCK SOCIETY.

The Cottam Agricultural Society, with headquarters at Cottam, Essex, has been organized with the object of keeping live stock for the benefit of its members. Essex County has a very enviable record in the matter of live stock improvement, as there are now no less than four purely Live Stock Agricultural Societies within its borders, one of which, the South Woodslee, keeps no less than 22 bulls and 23 boars. Oldcastle also stands second in this Province with 10 bulls and 10 boars, while Comber, in addition to holding an exhibition, has also commenced keeping pure-bred stock. This line of effort could be followed with the greatest advantage by other Societies in the Province, especially at a time like the present when there is such a shortage of live stock, which is likely to continue for some time to come.

The following essay won first prize in a recent competition on the subject named, and may prove of interest from this standpoint:

IMPROVEMENT OF FALL FAIRS.

A PLAN FOR RURAL COMMUNITY DEVELOPMENT THROUGH AGRICULTURAL SOCIETIES AND TRAINED AGRICULTURAL SECRETARIES.

S. B. MCCREADY, GUELPH.

A discussion on the improvement of Fall Fairs involves the question of the reorganization and redirection of the Agricultural Societies, since these societies are responsible for the carrying on of all the Fall Fairs. It is the purpose of this essay to inquire into the needs of present-day agricultural and rural society, to point out the weaknesses of our agricultural organizations, including Agricultural Societies, and to suggest plans whereby those needs may be served by co-operative readjustments under the initiative of the Agricultural Societies and the leadership of Agricultural secretaries. Through such readjustments it may be hoped Fall Fairs, as one of the most important activities of the Agricultural Societies, will greatly enhance their usefulness.

PRESENT DAY NEEDS OF AGRICULTURE AND THE RURAL SOCIETY.

The present day needs of agriculture and the rural society, may be briefly stated as a clear understanding by country people at large of their needs, and a determination to have those needs met. All intelligent progress, whether made by an individual or by a society, is based on a clear aim and a determined effort. To bring about a common realization of country-people's needs there must be propaganda enlightenment and education, resulting, if possible, in the development of a class-consciousness. To have the needs met there must be co-operative community effort under inspired and trained leadership.

Stated more specifically for Ontario, the problem consists in developing our rural communities into coherent, co-operative units; of adjusting and using all educational, financial and governmental agencies to this end; of organizing a force of trained and acceptable "community-engineers," and putting them to work under the best possible conditions; of making farm work so remunerative and farm life so attractive that the land may be fully occupied and utilized.

A CRITICAL STATE OF AFFAIRS.

Ontario agriculture and rural life is at a critical stage. Even before the war, the pronounced depletion of rural population with the consequent enlargement of farm holdings, the increase of land used as pasturage, the decrease of crop and other farm productions, constituted a serious crisis. And not merely because it meant crowding in cities and increased cost of living. But more important, because it meant that the sure foundation of the state's industrial and social stability was being worn away. Without a stable, contented, prosperous, independent land-owning rural population it is impossible for stable, progressive, beneficent democracy to be sustained. Ontario's future and well-being are directly involved in the problems of agriculture and rural life.

The war with its complications has added greatly to the seriousness of the situation. It has not obliterated the old problem. It has only obscured it. At the same time it has aggravated it. Recruiting and munitions-making have greatly lessened the man-power of the farms, at a time when greater and greater production is required to feed the armies and pay the war debts. Even before the enemy is beaten, grave concern is felt regarding post-war settlements. Will our boys want to go back to farming after soldiering? How can discharged soldiers be settled as farmers? How can the hard times in the town and cities, inevitable when war-manufacturing slumps, be offset by a return to the land? How can we secure payment of our debts from that rich storehouse—the soil?

AGRICULTURAL SOCIETIES SHOULD EXTEND THEIR ACTIVITIES.

In order to put the Agricultural Societies to work at this big undertaking there has to be an enlarged conception of the possibilities of their usefulness. If they are to continue to limit their efforts merely to holding Fall Fairs and Field Crop Competitions, they cannot effect the needed rural community-building any more than they have effected it in the past. Their vision has grown too narrow. At their inception, they were apparently intended to play a much larger part in rural and agricultural advancement than by merely conducting Fall Fairs. Education and co-operation were clearly their aims as working principles. The provision of competitions for money prizes was not considered necessary for success. Community neighborliness was promoted by their efforts. A few things learned from reading old-time records will illustrate those points. One of the societies in the Niagara District held its 127th annual Fall Fair last year (1916), and from its beginning in 1790 had never charged an entrance fee. Many societies co-operated in buying and distributing improved seed in the early days; live stock improvement was carried out in the same way. Over seventy years ago the Agricultural Society in the Brockville District planned a surprisingly modern Agricultural High School, and though they were unsuccessful, apparently had encouragement from the authorities toward its establishment. In 1841 the President of the Niagara District Agricultural Society published a text book on Agriculture for use of the schools of Upper Canada, so desirous was he of having the subject given a place in our educational system. Over eighty years ago the Agricultural Society in Lanark County distributed standard books on Agriculture as awards at the Fall Fairs, setting more store on reading and education than on the distribution of money.

These are not old-fashioned undertakings. They are essentially up-to-date. They well deserve re-discovering and adopting. Such activities, with many other

similar ones that modern conditions have shown the need of, might profitably be undertaken by Agricultural Societies. The new undertakings, however, should not be rushed into in a haphazard manner. There should be a clear-cut policy outlined after a careful investigation of the whole question.

AGRICULTURAL SOCIETIES TO HARMONIZE AGRICULTURAL ORGANIZATIONS.

But it may be asked why should the Agricultural societies be called on to undertake service in this field? Though historically they may be under some obligation to do so, times have changed and new organizations have arisen. Why cannot the cause be served successfully by these? Every phase of agriculture has its organization; every need seems to be met. There are acting Departments of Agriculture in Province and Dominion, the Agricultural College and District Representatives; short courses and long courses; Farmers' Institutes and Women's Institutes; demonstration farms and experimental farms; agricultural papers and free government publications; fall fairs and school fairs; field crop competitions and seed growers' associations; dairymen's associations and live stock associations; free distribution of breeding stock, government assistance in cold storage and in marketing; encouragement of agriculture in the schools, help in drainage and demonstrations in fruit growing. Surely with all these agencies operating, the needs of agriculture and rural life can be met and all problems solved.

But it must be acknowledged that these agencies have not been successful. Rural population has declined in spite of all effort. These agencies have failed and, continuing in the same lines, can hardly hope to be more successful than they have been. Their efforts must be harmonized and their services must be more generally accepted. Perhaps there has been over-organization? Many people think so. Perhaps there has been inherent weakness in the scheme of organization? Some think that the organization that has to be always directed and supported by the government is debilitating. People are trained into helplessness thereby.

There can hardly be over-organization of a kind originating from the people themselves and independently controlled and supported by themselves. Ontario needs thousands of self-reliant, co-operating rural communities. From such could come only strength and progress. Government support should not deprive the people of initiative and self-leadership. Its success should be measured not as so much crop increase, but as so much increase of the people's ability to carry on independently.

For harmonizing the work of all these governmental organizations, and making it count towards the building up of rural communities, the Agricultural Societies are peculiarly well suited.

WEAKNESSES OF FALL FAIRS POINTED OUT.

The limitations of this essay do not permit any lengthy discussion of the weaknesses of Fall Fairs as they are at present carried out. They can be pointed out only. A perusal of the Annual Reports of the Fall Fairs and Exhibitions reveals a healthy state of dissatisfaction amongst those who conduct our Fairs. Amongst others the following criticisms are made:—

1. The location of Fall Fairs is haphazard and uneven.
2. The nature of the Agricultural Society's service is too narrowly conceived. It is limited to a mere Fair.

3. The small rural Fairs imitate the big City Fair. They should not follow city fashions, but work out original and constructive plans of their own.

4. The money-winning Competition of Fairs engenders a spirit amongst neighbors antagonistic to co-operative community-building. A healthy motive in competitions should replace the selfish one.

5. There is a scarcity of good leaders for the Executives. Fairs fail when good officers, especially a secretary, cannot be secured.

6. For the large investment in lands and buildings there are little returns throughout the year.

7. The exhibits in the Women's Department are of small worth in developing Home Arts and Crafts.

8. The Fairs are weak in educational values.

9. The competition for public support of Rural Fairs has worked harm to the Agricultural Societies' efforts.

10. The judging is often very unsatisfactory.

11. The entertainment side of the Fair represented in special attractions, horse racing, and "midway" is overdone.

AGRICULTURAL SECRETARY FOR EVERY AGRICULTURAL SOCIETY.

One of the first essentials for the carrying out of the enlarged service suggested is an Agricultural Secretary. For such positions young men similar to the present Agricultural Representatives will be required. As their work is carried on now, a Representative is responsible for the entire work of the county. Anyone who knows anything of their multifarious duties realizes that a county is altogether too large for one man, or even two men, to serve adequately. There is sufficient work in an average township of Old Ontario to keep an expert busy year in and year out, provided the agricultural interests are properly organized. One agricultural expert for 5,000 country people is not an extravagant arrangement. That number of people will have as a rule more than one expert looking after their health, more than one looking after their legal concerns, several serving them in religious matters, and a large number making their livings by serving them in business affairs. Surely for scientific agriculture, that interest fundamental to all others, one expert could be profitably used.

It is hardly necessary to say that success will be largely dependent on the men selected as Secretaries. The proper kind of training will help much in fitting them for good work, but innate tact and ability will be prerequisites. Besides these, there will be need of character, scholarship, good address and a devoted missionary spirit. There should be permanence in the employment and adequate salaries will have to be paid. It is not a cheap service by any means. Graduates of the Agricultural College should, as a rule, be secured, though there may be practical men found who will be sufficiently equipped by two years' training at the college. Their college training should include instruction in such subjects as Rural Sociology, Principles of Farm Management and Rural Education, as well as those dealing with practical agriculture. Young men who have been brought up on farms and who have had several years' successful teaching experience in country schools before attending the Agricultural College should make desirable Secretaries. One of the best lines of work they will undertake will be in connection with the schools. Sound educational principles should underlie all their work.

These Secretaries should be chosen by the Agricultural Societies and not appointed by the Government. The Agricultural Representatives are government

officials. The Agricultural Secretaries should be directly responsible to the Agricultural Societies and not to the Government. While grants towards their salaries may naturally be expected from both the Dominion and Provincial governments, they should stand in the same relation to the Agricultural Society as a teacher does to a school board. This will help to make the Agricultural Societies more independent. As pointed out previously, one aim in the reorganization of agricultural agencies should be to make them independent and self reliant.

DUTIES OF AGRICULTURAL SECRETARIES.

The Agricultural Secretary would be the Managing Director, as it were, of this Council of Agricultural and Community Development to be described later. Acting with the Agricultural Society as the executive to whom he is responsible, his task would be to co-relate effort; to make all agricultural, educational, financial, and recreational effort focus in community advancement, to bring everyone—boys and men and women, farmers and village dwellers, producers and merchants—into partnership.

To do this there would be need of up-to-date business methods as befitting a modern "Efficiency Expert" and "Rural Community Engineer." All manner of investigations and inquiries would have to be made. The results of these would have to be made known. The people should be helped to discover themselves, their shortcomings, their possibilities. Do they know how good or how poor their schools are? How many pupils are leaving school inadequately educated? How poorly their Continuation School is serving the Community? How many farms are vacant? How many people left the community during the year? How much land needs drainage? How much live stock has been sold during the year? The value of the milk produced? How much fruit has been produced and what the orchards might yield? How the health of the community compares with that of other places? How much transportation costs? the number of automobiles? How the community compares year by year in population, health, education, agriculture? How far the local library is used by the country people?

No person should be able to escape his influence. By means of the local press, by concisely printed circulars, by typewritten sheets, by annual reports, the people should be informed and stirred. By work in the schools, by short courses for young farmers, by meeting with farmers, the teachings of scientific agriculture should be diffused. By personal contact with every individual in the community, a personal interest in his efforts should be enlisted.

It will be a matter of surprise to most people to learn that under an old provision of our school law, townships are permitted to engage an officer for just such work. So far as known, however, no township has ever done so.

COUNCIL OF AGRICULTURAL AND COMMUNITY DEVELOPMENT.

For carrying on its work in this enlarged field, the Agricultural Society does not need to be changed much. Apart from the Secretary, the same officers and the same Committees will continue their work. As the work grows, other committees may be found necessary, and it will be advisable to make provision for appointing such. The chief change proposed is to bring in in an advisory capacity representatives of all local organizations whose efforts are directed to the betterment in any way of the community. The Agricultural Society will not lose its identity. It will simply act as the bringing-together agency of forces that hitherto have worked

apart from one another. The Agricultural Society will be the executive of this enlarged body. It will seek advice, ask help, propose combined effort. The whole body will constitute a Council of Agricultural and Community Development. Such a name would challenge to progress in a field far larger than agriculture alone. Its best work will be done in *developing the Community spirit*.

For the composition of this Council such representatives as the following are suggested:—

Agriculture.—The officers of the Agricultural Society; the local representatives of Boards of Agriculture; Presidents of Farmer's Clubs; Junior Farmers; Co-operative Associations, Cheese and Butter Company, United Farmers' Associations, Retired Farmers' Association, the village Horticultural Society.

Educational.—Chairman of Village School Board; President of Township Rural Trustees' Association; Principal of Continuation School; President of Township Teachers' Association; President of Rural School Fair Board; Truancy Officer; Chairman of Library Board.

Woman's.—President of Women's Institute. President of Junior Women's Institute, President of Daughters of Empire; President of Women's Christian Temperance Union.

Business and Financial.—President of Board of Trade; Manager of Local Bank; Clerks and Treasurers of Village and Township; Chairman of Red Cross and Patriotic Funds; Chairman of Rural Credits Board; Editor of local paper; President of Rural Telephone Company; Chairman of Hydro-Electric Commission.

Health and Sanitation.—Chairman of Board of Health; Medical Health Officer; Community School Nurse; Superintendent of the Community Hospital.

Religious and Moral.—Representative of local clergymen; President of local Sunday School Association.

Recreational.—President of local Athletic Associations; President of Skating Rink Company.

Many of these are not now to be found in rural communities and may never be. Some are included as suggestions for development. In education for a rural community, for example, what could be more likely to induce progress than township Trustee and Teachers' Associations?

Meetings of this Council should be called at regular periods and where occasion demands such, special meetings should be called. They will be distinctly get-together meetings to discuss ways and means of promoting the community's best interests. In some cases the Agricultural Society will carry out the policies agreed upon; in other cases the meetings will be attended to by the other organizations. But the Agricultural Society will act as the clearing-house for progressive policies.

REARRANGEMENTS OF COMPETITIONS AND FAIRS SUGGESTED.

In two respects the Agricultural Society should make changes in the plans of the Fall Fair. First, it should replace many unprofitable competitions by competitions that will directly effect agricultural or educational improvements needed in the district. Second, it should spread its fair throughout the year, and thus keep up a steady interest in its undertakings.

Many exhibits now made at Fairs bring little real promotion of the interests they are supposed to promote. Indeed they may work a harm instead. Take for example the exhibits of apples. Apple growers should be encouraged to grow a

few select varieties in each district. Prizes for large numbers of improved varieties are defeating the best interests of the industry. The display, moreover, of a half dozen apples is not going far enough. There should be exhibits of boxes and barrels such as producers might ship. The apple show might be held by itself later when the apples are at their best. Prizes should be given to the best managed orchards, to the most profitable orchards, to the best group of orchards in divisions of the township, to the best scheme of marketing worked out by anyone. These are the things to encourage in the apple industry.

The educational value to the individual and the community should be kept in view in arranging competitions, as well as the direct benefit to the agriculture of the community. Social benefits should be kept in mind, too. Such competitions as these might be promoted: the best potato crop on each concession; the best kept farm accounts; the best farm garden; the best field of clover in each school district; the best stretch of roadside fronting a farm; the best average yield of milk for cows whose milk is sent to the factory; the best agricultural project carried out by a pupil of the Continuation School; the best kept school property; the best average attendance of the country schools; the farm showing most improvement during the year; the most productive herd of cows; the best judging of live stock by groups of boys from each school district; the best home made table cover made to an approved design furnished by the Society; the best sugar bush; the best reforestation of waste land.

As a rule, there is too much crowded into a Fall Fair. It might very well be spread throughout the year, and if the Agricultural Society had its exhibition building properly arranged this could be easily carried out. For example, the school children could have their Fair early in September. The women would have their exhibit of Household Arts in June. A fruit and potato exhibit could be held in November. A flower show might be held in August. The Red Cross workers could put on an exhibit just previous to shipping their supplies. Co-operating with the Continuation School, a loan Art Exhibit could be held in May. The Society would not be going outside its proper field, even by arranging a Community Sports' Day in June. Exhibits of farm machinery might be arranged for and demonstrations of their working. Ploughing matches, seed fairs, horse shows and field crop competitions should be continued also where such are of benefit.

AN ORGANIZED RURAL COMMUNITY WITH ITS OWN EXPERIMENTAL FARM.

For the sake of making the plan clear, it is proposed to picture one of these re-organized Agricultural Societies, with its Agricultural Secretary, operating in a farming district containing a single village community, in which there is located a High or Continuation School. Under actual conditions it may not be easy to find a rural community with its entire business interests centred in one village or its township boundaries confining those interests strictly. There will usually be overlapping from township to township and from village to village. There are, however, scores of rural villages in the Province recognizable as the natural centres of more or less self-contained farming communities. Such places as Metcalfe in Carleton County; Winchester in Dundas; Claremont in Ontario; Drayton and Clifford in Wellington; Smithville in Wentworth; St. George in Brant; and Tara in Bruce County would meet these requirements.

At such a place as any of these, the Agricultural Society would have its headquarters. The Agricultural Secretary would be located here. His office would be

in his home on the Agricultural Society's Experimental Farm. This farm would be adjacent to the Continuation School, and include the ground in which the Fall Fairs would be held. The buildings used for the Fall Fair would be so located and built that they could be put to good use by the schools, the municipality, or the Experimental Farm.

The Experimental Farm would be managed as far as possible as a paying proposition. While serving its farming district, fair charges would be made for everything produced from it. It would be managed by the Agricultural Society under the advice of the Agricultural Society's Executive, and part of his salary might be paid as a proportion of the profits from the farm so that he might be stimulated to careful management. The farm might be bought and equipped on a debenture scheme so that no burdensome outlay would be necessary at the start.

The ways in which this Experimental Farm could promote scientific agriculture, even while paying its own way, are many and varied. The Secretary's home could be a model farm house demonstrating housekeeping conveniences, a water supply and sewerage system, artistic decorating schemes, etc. The farm buildings could demonstrate correct lighting, ventilating and drainage principles as well as modern equipment. The poultry plant could demonstrate proper methods of housing and feeding, could serve as a breeding centre from which high class birds of the one or two breeds selected by the community could be distributed, and could undertake community hatching of early chicks on a wholesale scale. In a similar way, the farm could serve for the community improvement of live stock by breeding and distributing high class swine and sheep, and keeping superior bulls and stallions for service. Community cow-testing work might be carried on, too, in co-operation with the Dominion Dairy Branch. For the production of high class seed oats, potatoes, barley, alfalfa, clover, etc., for use in the district, the farm yields could be profitably used. If one or two varieties of potatoes could be settled upon, for the district to specialize on, the profitable marketing of such would be simplified. The grain plots on the farm might readily become recognized by the Canadian Seed Growers' Association as the Community Elite Seed Plots, and the entire grain production of the community would thus command good prices as Registered Seed. Home grown turnip and mangel seed could be produced for the district and the root crops thereby benefited. In horticulture, demonstration on spraying and correct orchard management could be made. From the farm strawberry beds plants could be distributed cheaply, likewise raspberry and currant bushes. Trees for roadside planting could be raised in the tree nursery and even fruit trees for local orchards. Healthy work for some of the partially disabled soldiers could be found in this. The township ploughing match would take place on the farm. Demonstrations of new machinery could be made there too. Experiments in fertilizing and drainage could be carried out.

Located alongside the continuation school, the farm could be put to the best possible educational uses, provided the subject of agriculture can be brought into our schemes of rural education through the creation of a favorable public opinion that will force the Department of Education and the University to make necessary readjustments. Every continuation school in Ontario should be a school constructively serving its rural community in all its needs.

COMPARATIVE STATEMENT OF GRANTS TO AGRICULTURAL SOCIETIES, 1916-17.

Societies.	1916	1917	Societies.	1916	1917
ALGOMA:			Essex Co.	\$589 00	583 00
Bruce Mines	\$122 00	\$122 00	Mersea, Leamington &		
Central Algoma	653 00	411 00	S. Gosfield	410 00	446 00
Iron Bridge	55 00	65 00	Windsor	618 00	725 00
Johnston & Aberdeen..	99 00	97 00	FRONTENAC:		
North Shore	99 00	110 00	Frontenac	138 00	130 00
St. Joseph Island	170 00	166 00	Kennebec	43 00	46 00
Thessalon	201 00	204 00	Kingston Industrial ..	234 00	311 00
BRANT:			Parham	84 00	85 00
Onondaga	125 00	133 00	Storrington	89 00	89 00
Paris	367 00	371 00	Wolfe Island	84 00	98 00
South Brant	427 00	429 00	GLENGARRY:		
BRUCE:			Glengarry	142 00	165 00
Arran & Tara	318 00	305 00	Kenyon	160 00	162 00
Carrick	223 00	236 00	St. Lawrence Valley..	270 00	282 00
Chesley	182 00	186 00	GRENVILLE:		
Eastnor	102 00	94 00	Kemptville	200 00	179 00
Hepworth	169 00	167 00	Merrickville	191 00	177 00
Huron Township	205 00	200 00	South Grenville	223 00	193 00
Kincardine	122 00	127 00	Spencerville	128 00	132 00
Lucknow	203 00	205 00	GREY:		
N. Bruce & Saugeen ..	168 00	174 00	Ayton	133 00	133 00
Northern	164 00	146 00	Collingwood Tp.	142 00	139 00
Paisley	215 00	219 00	Desboro	168 00	175 00
Pinkerton	97 00	95 00	East Grey	120 00	103 00
Teeswater	220 00	224 00	Egremont	157 00	156 00
Tiverton	113 00	114 00	Hanover, Bentinck &		
Underwood	138 00	133 00	Brant	154 00	150 00
Wiarton	158 00	161 00	Holland	139 00	145 00
CARLETON:			Keppel	87 00	85 00
Carleton County	472 00	438 00	Kilsyth	217 00	225 00
Carp	242 00	249 00	Markdale	194 00	211 00
Fitzroy	159 00	153 00	Meaford & St. Vincent	200 00	211 00
Metcalfe	332 00	289 00	Normanby	93 00	99 00
DUFFERIN:			Osprey	132 00	135 00
Dufferin	247 00	265 00	Owen Sound	365 00	370 00
Dufferin Central	294 00	292 00	Priceville	109 00	104 00
East Luther	233 00	255 00	Proton	220 00	230 00
DUNDAS:			Rocklyn	164 00	171 00
Dundas	79 00	81 00	South Grey	164 00	168 00
Mountain	200 00	191 00	Sydenham	100 00	100 00
Winchester	290 00	309 00	Walter's Falls	167 00	171 00
DURHAM:			HALDIMAND:		
Cartwright	132 00	129 00	Caledonia	547 00	564 00
Clarke Township	264 00	280 00	Canboro	51 00	58 00
Millbrook	365 00	349 00	Dunnville	168 00	164 00
Port Hope	354 00	415 00	Haldimand	205 00	205 00
West Durham	400 00	423 00	Southern Branch	123 00	122 00
ELGIN:			Walpole	195 00	No Fair
Aldboro	226 00	214 00	HALIBURTON:		
Aylmer & E. Elgin ..	.....	257 00	Glamorgan	45 00	42 00
Shedden	67 00	71 00	Haliburton	190 00	199 00
South Dorchester	169 00	181 00	Minden	184 00	193 00
Straffordville	88 00	89 00	HALTON:		
West Elgin	328 00	323 00	Acton	276 00	213 00
ESSEX:			Esquesing	256 00	256 00
Amherstburg, Ander-			Halton	384 00	389 00
don & Malden	184 00	211 00	Nelson & Burlington..	212 00	222 00
Colchester South	186 00	200 00	Trafalgar	222 00	232 00
Comber	152 00	145 00			

COMPARATIVE STATEMENT OF GRANTS TO AGRICULTURAL SOCIETIES,
1916-17.—Continued.

Societies.	1916	1917
HASTINGS:		
Bancroft	\$130 00	139 00
Belleville	363 00	352 00
Frankford	276 00	269 00
Madoc	245 00	263 00
Marmora	120 00	110 00
Maynooth	89 00	70 00
Shannonville	146 00	149 00
Stirling	195 00	197 00
Tweed	207 00	214 00
Wollaston	84 00	94 00

HURON:		
Bayfield	97 00	102 00
Blyth	134 00	134 00
Dungannon	132 00	127 00
East Huron	231 00	209 00
Exeter	213 00	216 00
Goderich Industrial ..	258 00	252 00
Howick	127 00	138 00
Seaforth	215 00	217 00
South Huron (Spring Fair only) .....	.....	.....
Turnberry	168 00	173 00
Zurich	117 00	123 00

KENORA:		
Dryden	325 00	331 00
Kenora	445 00	387 00

KENT:		
Camden	128 00	122 00
East Kent	229 00	244 00
Harwich	189 00	199 00
Howard	297 00	325 00
Orford	223 00	247 00
Raleigh & Tilbury ...	136 00	131 00
Romney & Wheatley ..	132 00	133 00
Wallaceburg	126 00	124 00
West Kent	388 00	347 00

LAMBTON:		
Bosanquet	176 00	188 00
Brooke & Alvinston ..	263 00	259 00
East Lambton	249 00	254 00
Florence	158 00	166 00
Forest	213 00	220 00
Moore	243 00	246 00
Petrolia & Enniskillen	363 00	362 00
Plympton & Wyoming	148 00	161 00
Sombra	111 00	109 00
West Lambton	333 00	.....

LANARK:		
Dalhousie	106 00	104 00
Lanark Tp.	132 00	136 00
Lanark Village and Bathurst	186 00	175 00
Maberly	75 00	73 00
North Lanark	588 00	533 00
Pakenham	175 00	170 00
South Lanark	320 00	317 00

LEEDS:		
Brockville	492 00	383 00
Delta	226 00	209 00

Societies.	1916	1917
Frankville	\$190 00	\$191 00
Lansdowne	175 00	168 00
Lombardy	122 00	131 00
North Crosby	52 00	.....

LENNOX AND ADDINGTON:		
Addington	63 00	68 00
Amherst Island	140 00	140 00
Centreville	78 00	78 00
Ernesttown	94 00	99 00
Lennox	280 00	.....

LINCOLN:		
Abingdon	68 00	66 00
Clinton	219 00	215 00
Monck	92 00	107 00
Niagara Town & Tp..	91 00	.....
Peninsula Central	70 00	79 00

MANITOULIN ISLAND:		
Billings	220 00	206 00
Gore Bay	356 00	363 00
Howland	116 00	129 00
Manitowaning	209 00	222 00
Providence Bay	151 00	173 00

MIDDLESEX:		
Caradoc	123 00	135 00
Delaware	150 00	162 00
Dorchester	223 00	229 00
East Middlesex	100 00	100 00
London Tp.	98 00	105 00
McGillivray	67 00	59 00
Melbourne	189 00	211 00
Mosa & Ekfrid	215 00	224 00
North Middlesex	113 00	117 00
Parkhill	143 00	144 00
Strathroy	458 00	475 00
Thorndale	125 00	120 00
Westminster	134 00	122 00

MUSKOKA:		
Baysville	140 00	158 00
Gravenhurst & Mus- koka	350 00	363 00
Medora & Wood	285 00	287 00
Morrison	116 00	114 00
North Muskoka	347 00	359 00
South Muskoka	781 00	800 00
Stephenson & Watt ..	313 00	348 00
Stisted	151 00	152 00

NIPISSING:		
Astorville	127 00	119 00
Bonfield	131 00	136 00
East Nipissing	277 00	264 00
Sturgeon Falls	232 00	276 00
Verner	301 00	335 00

NORFOLK:		
Charlottetown	144 00	140 00
Courtland	102 00	103 00
Houghton	130 00	131 00
Norfolk Co.	583 00	575 00
North Walsingham ..	109 00	107 00
Townsend	73 00	71 00
Windham	96 00	105 00

COMPARATIVE STATEMENT OF GRANTS TO AGRICULTURAL SOCIETIES,
1916-17.—Continued.

Societies.	1916	1917	Societies.	1916	1917
NORTHUMBERLAND:			PETERBOROUGH:		
Alnwick	\$136 00	\$135 00	East Peterborough ...	\$363 00	\$389 00
Brighton	220 00	241 00	Galway	41 00	45 00
Cobourg Central	267 00	240 00	Lakefield	126 00	131 00
Colborne	271 00	264 00	Otonabee	142 00	145 00
Cramahe	159 00	162 00	Peterborough Indus....	672 00	706 00
Percy Tp.	352 00	399 00			
Seymour	185 00	207 00	PRESCOTT:		
Wooler	114 00	103 00	Alfred	99 00	104 00
			South Plantagenet ...	107 00	120 00
ONTARIO:			Vankleek Hill	362 00	357 00
Beaverton	162 00	161 00			
Brock	226 00	217 00	PRINCE EDWARD:		
Pt. Perry, Reach and			Ameliasburg	148 00	161 00
Scugog	160 00	188 00	Prince Edward	519 00	556 00
Ramona	46 00	.....	Sophiasburg	115 00	123 00
Scott	126 00	130 00			
South Ontario	485 00	489 00	RAINY RIVER:		
Uxbridge	230 00	235 00	Atwood	137 00	207 00
			Rainy River Valley ..	650 00	634 00
OXFORD:					
Drumbo	297 00	304 00	RENFREW:		
East Nissouri	85 00	101 00	Arnprior	227 00	269 00
Ingersoll, North and			Cobden	200 00	220 00
West Oxford	148 00	145 00	North Renfrew	354 00	355 00
North Norwich	202 00	213 00	Renfrew	633 00	638 00
South Norwich	140 00	141 00			
Tavistock	222 00	228 00	RUSSELL:		
Tillsonburg and Dere-			Casselman	63 00	66 00
ham	235 00	230 00	Clarence	100 00	89 00
West Zorra & Embro.	157 00	173 00	Russell	242 00	248 00
Woodstock	501 00	507 00			
PARRY SOUND:			SIMCOE:		
Armour, Ryerson and			Alliston	175 00	168 00
Burk's Falls	502 00	537 00	Barrie	412 00	415 00
Christie	118 00	165 00	Beeton	179 00	174 00
Loring	208 00	202 00	Bradford and West		
Machar	231 00	227 00	Gwillmbury	199 00	168 00
Magnetawan	266 00	267 00	Coldwater	155 00	156 00
McKellar	352 00	406 00	Cookstown	202 00	188 00
McMurrich	273 00	277 00	East Simcoe .....	.....	.....
Parry Sound	346 00	434 00	Flos Tp.	179 00	177 00
Perry	308 00	331 00	Nottawasaga & Great		
Powassan	304 00	321 00	Northern	246 00	249 00
Rosseau	190 00	238 00	Oro	178 00	184 00
Strong	297 00	301 00	Tiny and Tay	176 00	137 00
United Tps.	167 00	212 00			
PEEL:			STORMONT:		
Albion & Bolton	268 00	269 00	Cornwall	286 00	310 00
Caledon	161 00	152 00	Finch	81 00	77 00
Cooksville	247 00	260 00	Roxborough	158 00	176 00
Peel	436 00	460 00	Stormont	129 00	144 00
Toronto Gore (Spring					
Fair only) .....	.....	.....	SUDBURY:		
Toronto Tp.	381 00	346 00	Martland & Cosby ...	65 00	66 00
			Massey	277 00	291 00
PERTH:			Warren	190 00	197 00
Elma	119 00	117 00			
Fullarton, Logan and			TEMISKAMING:		
Hibbert	232 00	253 00	Charlton	173 00	197 00
Kirkton	166 00	184 00	Cochrane	40 00	.....
Listowel	142 00	139 00	Englehart	203 00	221 00
Mornington	189 00	185 00	Matheson	107 00	.....
South Perth	182 00	204 00	New Liskeard	469 00	480 00
Stratford	298 00	346 00			

COMPARATIVE STATEMENT OF GRANTS TO AGRICULTURAL SOCIETIES,
1916-17.—Continued.

Societies.	1916	1917	Societies.	1916	1917
THUNDER BAY:			Guelph & South Wel-		
Oliver	\$347 00	333 00	lington	(No Fair)	
West Algoma	800 00	.....	Maryborough	(No Fair)	
Whitefish Valley	175 00	167 00	Mount Forest	\$301 00	\$309 00
VICTORIA:			Palmerston	132 00	129 00
Eldon	118 00	120 00	Peel and Drayton	142 00	151 00
Fenelon	146 00	151 00	Puslinch	158 00	158 00
Mariposa	124 00	127 00	Rockwood	194 00	205 00
North Victoria	44 00	.....	West Wellington .....	.....	.....
South Victoria	709 00	769 00	WENTWORTH:		
Verulam	259 00	227 00	Ancaster	178 00	202 00
WATERLOO:			Binbrook	85 00	84 00
Elmira & Woolwich ..	151 00	156 00	Hamilton and Went-		
South Waterloo	486 00	481 00	worth	464 00	.....
Wellesley and North			Rockton	333 00	339 00
Easthope	210 00	205 00	Waterdown	192 00	178 00
Wilmot	212 00	233 00	West Flamboro	131 00	113 00
WELLAND:			YORK:		
Bertie	191 00	183 00	Markham	744 00	772 00
Fenwick	240 00	264 00	Newmarket	450 00	436 00
Stamford and Niagara			Queensville	122 00	118 00
Falls	31 00	65 00	Richmond Hill	188 00	202 00
Thorold Town & Tp..	158 00	127 00	Scarboro	328 00	343 00
Wainfleet	96 00	97 00	Schomberg	256 00	256 00
Welland	429 00	445 00	Sutton	140 00	137 00
WELLINGTON:			Weston, York & Etobi-		
Arthur	190 00	208 00	coke	232 00	238 00
Centre Wellington ...	314 00	333 00	Woodbridge	502 00	514 00
Erin	346 00	336 00			
				\$73,043 00	\$72,129 00

SPECIAL GRANTS TO SOCIETIES IN THE DISTRICTS.

Societies.	1916	1917	Societies.	1916	1917
ALGOMA:			MANITOULIN:		
Bruce Mines	\$55 00	\$57 00	Billings	\$98 00	\$96 00
Central Algoma	100 00	100 00	Gore Bay	100 00	100 00
Iron Bridge	25 00	31 00	Howland	52 00	60 00
Johnston & Aberdeen.	44 00	45 00	Manitowaning	93 00	100 00
North Shore	44 00	52 00	Providence Bay	67 00	81 00
St. Joseph Island	76 00	77 00	MUSKOKA:		
Thessalon	90 00	95 00	Baysville	62 00	74 00
FRONTENAC:			Gravenhurst and Mus-		
Kennebec	39 00	43 00	koka	100 00	100 00
Parham	75 00	80 00	Medora & Wood	100 00	100 00
HALIBURTON:			Morrison	52 00	53 00
Glamorgan	20 00	20 00	North Muskoka	100 00	100 00
Haliburton	85 00	93 00	South Muskoka	100 00	100 00
Minden	82 00	92 00	Stephenson & Watt ..	100 00	100 00
HASTINGS:			Stisted	67 00	71 00
Bancroft	100 00	100 00	NIPISSING:		
Maynooth	79 00	65 00	Astorville	57 00	56 00
Wollaston	75 00	88 00	Bonfield	58 00	63 00
KENORA:			East Nipissing	100 00	100 00
Dryden	100 00	100 00	Sturgeon Falls	100 00	100 00
Kenora	100 00	100 00	Verner	100 00	100 00
			PARRY SOUND:		
			Armour, Ryerson and		
			Burk's Falls	100 00	100 00

SPECIAL GRANTS TO SOCIETIES IN THE DISTRICTS.—Continued.

Societies.	1916	1917
Christie	\$53 00	\$77 00
Loring	93 00	94 00
Machar	100 00	100 00
Magnetawan	100 00	100 00
McKellar	100 00	100 00
McMurrich	100 00	100 00
Parry Sound	100 00	100 00
Perry	100 00	100 00
Powassan	100 00	100 00
Rosseau	85 00	100 00
Strong	100 00	100 00
United Tps.	75 00	98 00

PETERBOROUGH:		
Galway	37 00	43 00

RAINY RIVER:		
Atwood	96 00	100 00
Rainy River Valley ..	100 00	100 00

Societies.	1916	1917
SUDBURY:		
Marland and Cosby ..	\$22 00	\$31 00
Massey	100 00	100 00
Warren	85 00	91 00

TEMISKAMING:		
Charlton	77 00	92 00
Cochrane	64 00	.....
Englehart	91 00	100 00
Matheson	48 00	.....
New Liskeard	100 00	100 00

THUNDER BAY:		
Oliver	100 00	100 00
West Algoma	100 00	.....
Whitefish Valley	78 00	78 00

\$4,999 00 \$4,996 00

GRANTS TO SPRING FAIRS.—1917.

Stallion Shows, 1917, \$607.00.	
South Perth	\$40 00
Forest	38 00
Wilmot	50 00
Erin	50 00
Palmerston	45 00
Wellesley & N. Easthope	47 00
Carrick	50 00
Stratford	50 00
E. Luther	50 00
Peel Co.	50 00
Collingwood Tp.	30 00
Meaford and St. Vincent	21 00
West Kent	36 00
S. Lanark	50 00
	\$607 00

Stallion and Bull Shows, 1917, \$440.00.	
Verner	\$45 00
Seaforth	50 00
South Huron	50 00

Paris	\$44 00
Woodstock	50 00
Arthur	50 00
Arran & Tara	47 00
Rocklyn	13 00
Fullarton, Logan & Hibbert...	50 00
Toronto Gore	50 00
	\$440 00

Seed Fairs, 1917, \$146.00.	
Verulam	\$21 00
Verner	20 00
South Huron	13 00
C. Wellington	18 00
Carrick	25 00
Stratford	12 00
S. Waterloo	16 00
Collingwood Tp.	21 00
	\$146 00

GRANTS TO SOCIETIES OWNING PURE-BRED STOCK.—1917.

Colchester North	\$270 00
Comber	20 00
Drummond	96 00
Dummer & Douro	290 00
East Huron	20 00
Emily	160 00
Kenora	20 00
Lakehurst	170 00

Oldcastle	\$355 00
Osgoode	210 00
South Woodslee	730 00
Verulam	40 00
Wooler	20 00
	\$2,401 00

SPECIAL GRANTS.

INDIAN SOCIETIES:

	1916.	1917.
Six Nations	\$100 00	\$100 00
United Indian	100 00	100 00
	\$200 00	\$200 00

GRANTS TO THE CANADIAN NATIONAL, CENTRAL CANADA AND
WESTERN FAIR.

	1916.	1917.
Canadian National	\$2,476 00	\$2,664 00
Central Canada	1,303 00	1,060 00
Western Fair	1,221 00	1,276 00
	<u>\$5,000 00</u>	<u>\$5,000 00</u>

LEGISLATIVE GRANTS TO AGRICULTURAL SOCIETIES WHICH HELD FIELD
CROP COMPETITIONS IN 1916.

ALGOMA:

Central Algoma	\$100 00
North Shore	100 00
St. Joseph Island	100 00
Thessalon	100 00

BRANT:

Onondaga	100 00
Paris	100 00
Six Nations	50 00

BRUCE:

Carrick	50 00
Chesley	50 00
Eastnor	100 00
Hepworth	50 00
Huron Tp.	100 00
Lucknow	50 00
N. Bruce & Saugeen	100 00
Northern	50 00
Pinkerton	50 00
Teeswater	50 00
Wiarton	100 00

CARLETON:

Carleton County	50 00
Carp	100 00
Fitzroy	100 00
Metcalf	100 00

DUFFERIN:

Dufferin	100 00
Dufferin Central	50 00
East Luther	100 00

DUNDAS:

Mountain	100 00
Winchester	100 00

DURHAM:

Cartwright	50 00
Clarke Township	100 00
Millbrook	50 00
Port Hope	100 00
West Durham	50 00

ELGIN:

Aldboro	50 00
South Dorchester	100 00

ESSEX:

Amherstburg, Anderdon and Malden	100 00
Comber	50 00
South Woodslee	50 00
Windsor	50 00

FRONTENAC:

Kingston Tp.	\$50 00
Wolfe Island	50 00

GLENGARRY:

Kenyon	50 00
St. Lawrence Valley	50 00

GRENVILLE:

Kemptville	50 00
Spencerville	50 00

GREY:

Holland	50 00
Keppel	100 00
Kilsyth	100 00
Markdale	100 00
Meaford & St. Vincent	50 00
Normanby	50 00
Osprey	50 00
Priceville	50 00
Proton	100 00
Rocklyn	100 00
South Grey	50 00
Walter's Falls	100 00

HALDIMAND:

Caledonia	50 00
Haldimand	50 00

HALTON:

Halton	100 00
Nelson & Burlington	100 00

HASTINGS:

Frankford	100 00
Madoc	100 00
Maynooth	50 00
Stirling	100 00
Wollaston	100 00

HURON:

Blyth	50 00
East Huron	50 00
Goderich Industrial	50 00
Howick	50 00
Turnberry	50 00

KENORA:

Dryden	100 00
Kenora	100 00

KENT:

Harwich	50 00
Orford	50 00
Raleigh & Tilbury	50 00
Wallaceburg	100 00

LEGISLATIVE GRANTS TO AGRICULTURAL SOCIETIES WHICH HELD FIELD
CROP COMPETITIONS IN 1916.—*Continued.*

LAMETON:			Rosseau	\$100 00
Bosanquet	\$50 00		Strong	100 00
Brooke & Alvinston	100 00		United Tps.	50 00
Plympton & Wyoming	50 00			
Sombra	100 00			
LANARK:			PEEL:	
Drummond	50 00		Albion & Bolton	50 00
			Peel	50 00
			Toronto Tp.	50 00
LEEDS:			PERTH:	
Lansdowne	50 00		Fullarton, Logan & Hibbert...	100 00
Lombardy	50 00		Kirkton	100 00
			Stratford	50 00
LINCOLN:			PETERBOROUGH:	
Clinton	50 00		East Peterborough	50 00
MANITOULIN:			Otonabee	50 00
Gore Bay	50 00		Peterborough Industrial	50 00
MIDDLESEX:			PRESCOTT:	
Caradoc	100 00		Alfred	50 00
Dorchester	100 00			
East Middlesex	50 00		PRINCE EDWARD:	
McGillivray	50 00		Ameliasburg	100 00
Mosa & Ekfrid	50 00		Prince Edward	50 00
North Middlesex	50 00		Sophiasburg	50 00
Strathroy	100 00			
MUSKOKA:			RAINY RIVER:	
Gravenhurst & Muskoka	100 00		Atwood	100 00
Medora & Wood	100 00		Rainy River Valley	100 00
North Muskoka	100 00			
South Muskoka	100 00		RENFREW:	
Stephenson & Watt	100 00		Arnprior	50 00
			Cobden	100 00
			North Renfrew	100 00
			Renfrew	100 00
NIPISSING:			RUSSELL:	
Bonfield	50 00		Russell	50 00
Verner	100 00			
NORFOLK:			SIMCOE:	
Courtland	50 00		Barrie	50 00
North Walsingham	50 00		Nottawasaga & Great Northern	100 00
NORTHUMBERLAND:			SUDBURY:	
Seymour	100 00		Warren	50 00
Wooler	50 00			
ONTARIO:			TEMISKAMING:	
Beaverton	100 00		Charlton	100 00
Scott	50 00		Englehart	100 00
			New Liskeard	100 00
OXFORD:			THUNDER BAY:	
East Nissouri	100 00		Oliver	50 00
North Norwich	50 00		Whitefish Valley	100 00
South Norwich	50 00			
West Zorra & Embro	100 00		VICTORIA:	
PARRY SOUND:			Eldon	50 00
Armour, Ryerson and Burk's			Fenelon	50 00
Falls	100 00		Verulam	100 00
Loring	50 00		WATERLOO:	
Machar	100 00		South Waterloo	100 00
Magnetawan	50 00			
McKellar	100 00		WELLAND:	
McMurrich	100 00		Bertie	100 00
Perry	100 00		Fenwick	100 00
Powassan	100 00		Welland	50 00

LEGISLATIVE GRANTS TO AGRICULTURAL SOCIETIES WHICH HELD FIELD
CROP COMPETITIONS IN 1916.—*Continued.*

WELLINGTON:

Arthur	\$50 00
Centre Wellington	100 00
Erin	100 00
Puslinch	100 00
Rockwood	50 00

WENTWORTH:

Ancaster	100 00
Waterdown	50 00
West Flamboro	50 00

YORK:

Markham	\$50 00
Richmond Hill	50 00
Scarboro	100 00
Schomberg	50 00
	<u>\$12,400 00</u>

GRANTS TO SOCIETIES WHICH SUFFERED LOSSES IN GATE RECEIPTS
THROUGH WET WEATHER.

BRANT:

Paris	\$61 00
-------------	---------

BRUCE:

Huron Tp.	76 00
Lucknow	98 00
Paisley	92 00

ESSEX:

Comber	140 00
Essex County	121 00
Windsor & N. Essex	291 00

GRENVILLE:

Merrickville	106 00
South Grenville	205 00

GREY:

East Grey	70 00
Holland	71 00
Keppel	14 00
Meaford & St. Vincent	107 00
Proton	182 00
South Grey	102 00

HALDIMAND:

Caledonia	300 00
Haldimand	45 00

HALTON:

Acton	92 00
-------------	-------

HASTINGS:

Belleville	242 00
------------------	--------

HURON:

Goderich Industrial	300 00
---------------------------	--------

LAMBERTON:

Petrolia & Enniskillen	143 00
Sombra	17 00
West Lambton	300 00

LEEDS:

Brockville	300 00
Frankville	89 00

LINCOLN:

Monck	54 00
-------------	-------

MIDDLESEX:

London Tp.	123 00
Parkhill	110 00
Thorndale	53 00

MUSKOKA:

Stephenson & Watt	\$29 00
-------------------------	---------

NIPISSING:

East Nipissing	23 00
Norfolk Co.	300 00
Townsend	43 00

ONTARIO:

Pt. Perry, Reach & Scugog ...	213 00
-------------------------------	--------

PARRY SOUND:

Armour, Ryerson and Burk's Falls	22 00
Loring	22 00
Magnetawan	9 00
Perry	8 00
United Tps.	8 00

PEEL:

Peel Co.	46 00
---------------	-------

PERTH:

Kirkton	62 00
Mornington	142 00

RAINY RIVER:

Rainy River Valley	31 00
--------------------------	-------

TEMISKAMING:

Charlton	16 00
Englehart	43 00

VICTORIA:

Eldon	36 00
-------------	-------

WELLAND:

Thorold Town & Tp.	300 00
-------------------------	--------

WELLINGTON:

Mount Forest	39 00
Peel & Drayton	161 00

WENTWORTH:

West Flamboro	46 00
---------------------	-------

YORK:

Newmarket	299 00
Schomberg	170 00
Woodbridge	300 00

\$6,272 00

ANALYSIS OF PRIZE MONEY PAID BY AGRICULTURAL SOCIETIES IN ONTARIO
IN 1916.

Societies.	Horses.	Cattle.	Sheep.	Swine.	Miscel- laneous.	Total.
ALGOMA:	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Bruce Mines	39 00	35 75	8 25	.....	102 50	185 50
Central Algoma	176 00	167 00	23 00	38 00	627 80	1,031 80
Iron Bridge	18 50	14 00	8 00	3 00	64 00	107 50
Johnston & Aberdeen	39 75	11 00	26 00	1 00	69 00	146 75
North Shore	25 00	40 25	26 75	2 50	82 75	177 25
St. Joseph Island	42 00	23 50	6 50	3 00	135 50	210 50
Thessalon	75 00	40 00	12 00	6 00	141 75	274 75
BRANT:						
Onondaga	88 50	60 00	17 00	29 00	197 25	391 75
Paris	323 00	132 00	145 00	82 00	534 00	1,216 00
South Brant	459 00	201 00	113 00	58 00	600 00	1,431 00
BRUCE:						
Arran & Tara	374 00	150 00	65 00	20 00	295 75	904 75
Carrick	210 00	166 00	44 00	27 50	301 50	749 00
Chesley	199 50	111 00	46 00	2 50	246 65	605 65
Eastnor	38 00	24 75	9 00	8 50	105 50	185 75
Hepworth	145 00	90 00	24 00	12 50	195 60	467 10
Huron Tp.	115 75	89 00	43 25	26 00	252 55	526 55
Kincardine	149 00	60 00	32 00	14 00	145 50	400 50
Lucknow	203 25	113 00	27 50	24 50	226 05	594 30
N. Bruce & Saugeen	158 00	49 50	33 25	17 00	225 10	482 85
Northern	159 50	61 75	63 25	19 00	107 30	410 80
Paisley	159 50	93 00	38 50	24 00	408 73	723 73
Pinkerton	45 25	31 00	14 75	8 50	153 00	252 50
Teeswater	180 00	134 00	39 75	38 25	300 25	692 25
Tiverton	132 50	52 75	33 50	23 50	133 25	375 50
Underwood	95 50	66 25	40 00	44 50	156 75	403 00
Warton	97 51	93 50	72 50	25 50	182 80	471 81
CARLETON:						
Carleton Co.	339 00	188 32	111 00	98 00	406 47	1,142 79
Carp	358 00	119 00	26 00	21 00	305 20	829 20
Fitzroy	156 00	72 00	.....	9 00	180 86	417 86
Metcalfe	293 50	156 40	51 60	47 20	231 55	780 25
DUFFERIN:						
Dufferin	250 00	101 00	79 00	16 00	387 35	833 35
Dufferin Central	267 00	175 00	64 00	19 00	391 00	915 00
East Luther	171 00	140 00	55 00	18 00	476 00	860 00
DUNDAS:						
Dundas	192 75	.....	.....	.....	.....	192 75
Mountain	121 25	186 25	12 50	13 75	166 25	500 00
Winchester	606 50	149 65	57 50	23 00	304 90	1,141 55
DURHAM:						
Cartwright	119 50	32 50	51 50	14 00	179 85	397 35
Clarke Tp.	286 00	165 50	77 00	43 00	344 50	916 00
Millbrook	407 00	144 50	78 00	51 50	444 00	1,125 00
Port Hope	307 00	186 00	191 00	67 00	655 65	1,406 65
West Durham	355 00	214 00	173 00	63 50	621 95	1,427 45
ELGIN:						
Aldboro	169 00	111 00	74 70	28 50	281 85	665 05
Shedden	62 00	80 75	22 50	10 25	81 85	257 35
South Dorchester	130 75	87 50	8 50	9 50	266 35	502 60
Straffordville	75 00	48 00	20 50	6 75	133 50	283 75
West Elgin	406 15	243 00	50 00	29 00	309 15	1,037 30
ESSEX:						
Amherstburg, Anderdon & Malden	118 50	164 50	83 50	83 75	160 98	611 23
Colchester South	170 00	145 00	91 25	92 25	235 50	734 00
Comber	55 50	56 25	49 25	31 25	176 00	768 25
Essex Co.	402 50	315 00	146 00	196 00	650 00	1,709 50
Mersea, Leamington & S. Gosfield	257 50	245 25	208 00	151 50	639 75	1,502 00
Windsor	267 00	881 00	309 00	344 00	509 40	2,310 40

ANALYSIS OF PRIZE MONEY PAID BY AGRICULTURAL SOCIETIES.—Continued.

Societies	Horses.	Cattle.	Sheep.	Swine.	Miscellaneous.	Total.
FRONTENAC:	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Frontenac	98 50	63 50	21 50	28 00	160 25	371 75
Kennebec	48 50	19 50	13 25	7 00	50 10	138 35
Kingston Industrial	188 00	244 00	54 00	42 00	606 50	1,134 50
Parham	62 50	15 50	16 50	12 50	151 10	258 10
Storrington	72 25	48 80	9 20	17 25	137 20	284 70
Wolfe Island	98 75	41 00	21 25	30 00	138 25	329 25
GLENGARRY:						
Glengarry	197 00	224 50	23 50	20 50	192 00	657 50
Kenyon	224 50	73 50	23 50	22 50	154 10	498 10
St. Lawrence Valley	362 00	200 00	53 00	23 20	257 35	895 55
GRENVILLE:						
Kemptville	104 00	117 25	33 00	14 25	140 66	409 16
Merrickville	200 01	34 50	44 75	24 25	154 30	457 81
South Grenville	93 00	69 50	3 00	11 00	281 50	458 00
Spencerville	69 50	61 00	16 25	14 00	272 10	432 85
GREY:						
Ayton	130 00	47 00	37 25	32 00	173 00	419 25
Collingwood Tp.	121 50	68 50	25 00	.....	196 75	411 75
Desboro	246 75	91 50	20 50	4 00	220 37	583 12
East Grey	50 50	52 50	37 50	.....	171 05	311 55
Egremont	100 50	89 75	25 25	43 00	213 35	471 85
Hanover, Bentinck & Brant	86 00	67 50	73 50	17 00	200 00	444 00
Holland	210 50	39 50	12 00	4 00	173 00	439 00
Keppel	53 00	9 75	10 00	1 50	118 10	192 35
Kilsyth	272 00	117 50	62 50	34 00	199 50	685 50
Markdale	200 91	118 50	76 50	36 00	241 00	672 91
Meaford & St. Vincent ...	218 50	35 50	48 00	27 50	342 60	672 10
Normanby	96 50	32 00	16 75	9 50	151 05	305 80
Osprey	110 00	48 25	38 00	12 00	201 25	409 50
Owen Sound	335 00	179 00	61 75	64 00	510 75	1,150 50
Priceville	43 60	45 00	37 50	21 00	135 65	282 75
Proton	182 50	85 00	56 00	28 00	318 75	670 25
Rocklyn	160 00	107 00	42 00	25 00	157 75	491 75
South Grey	76 00	78 50	40 50	24 00	308 00	527 00
Sydenham	74 00	35 75	12 50	13 00	171 75	307 00
Walter's Falls	149 10	72 00	32 00	13 75	148 15	415 00
HALDIMAND:						
Caledonia	444 00	253 00	297 00	105 00	740 50	1,839 50
Canboro	100 25	22 75	21 50	.....	59 85	204 35
Dunnville	153 66	99 50	53 25	4 00	202 60	513 01
Haldimand	206 00	110 00	43 00	1 75	247 30	608 05
Southern Branch	139 00	26 75	29 50	.....	171 05	366 30
Walpole	(No Fair.)					
HALIBURTON:						
Glamorgan	15 00	3 30	4 40	70	44 30	67 70
Haliburton	74 00	61 25	14 25	8 50	171 45	329 45
Minden	66 75	52 45	32 50	18 50	161 55	331 75
HALTON:						
Acton	235 00	118 00	40 00	26 00	335 50	754 50
Esquesing	263 00	109 00	45 00	21 10	328 35	766 45
Halton	268 00	197 00	132 50	55 00	591 66	1,244 16
Nelson & Burlington	250 00	126 00	27 50	3 00	304 55	711 05
Trafalgar	416 00	132 50	52 00	31 00	292 50	924 00
HASTINGS:						
Bancroft	64 50	70 50	74 50	12 00	237 05	458 55
Belleville	487 50	155 25	67 50	33 50	332 95	1,076 70
Frankford	282 50	56 00	97 75	65 75	220 05	722 05
Madoc	358 10	79 00	24 00	40 25	340 60	841 95
Marmora	86 50	42 00	18 25	26 25	166 30	339 30
Maynooth	43 00	14 50	9 00	3 00	89 00	158 50
Shannonville	128 75	102 50	59 50	36 75	158 40	485 90
Stirling	235 25	32 20	23 00	34 25	168 50	493 20
Tweed	159 25	193 20	43 00	22 00	247 10	664 55
Wollaston	80 00	47 00	29 00	19 00	119 00	294 00

ANALYSIS OF PRIZE MONEY PAID BY AGRICULTURAL SOCIETIES.—Continued.

Societies.	Horses.	Cattle.	Sheep.	Swine.	Miscellaneous.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
HURON:						
Bayfield	74 50	37 75	34 75	30 00	179 25	356 25
Blyth	116 50	50 00	30 00	20 00	224 25	440 75
Dungannon	108 50	60 50	34 50	19 50	210 25	433 25
East Huron	158 90	55 50	42 75	45 50	321 50	624 15
Exeter	174 50	90 00	71 00	29 00	333 80	698 30
Goderich Industrial	187 00	111 00	39 00	37 00	412 95	786 95
Howick	128 50	78 25	49 25	13 50	217 25	486 75
Seaforth	155 00	76 50	54 00	32 00	329 50	647 00
South Huron	(Spring	Fair on ly)				
Turnberry	135 00	66 50	40 00	36 00	310 48	587 98
Zurich	125 00	74 25	19 25	25 00	188 30	431 80
KENORA:						
Dryden	39 00	46 00	17 00	12 00	275 50	389 50
Kenora	95 00	95 00	.....	5 00	416 70	601 70
KENT:						
Camden	112 50	43 25	59 00	43 25	176 90	434 90
East Kent	198 00	142 75	102 00	92 00	207 25	742 00
Harwich	176 00	98 00	51 35	55 50	304 05	684 90
Howard	252 00	227 00	143 00	158 00	373 50	1,153 50
Orford	239 50	163 50	109 25	60 50	279 40	852 15
Raleigh & Tilbury	138 00	59 00	50 50	45 00	141 40	433 90
Romney and Wheatley	102 50	54 00	53 20	49 50	140 80	400 00
Wallaceburg	67 00	74 00	44 25	5 50	183 75	374 50
West Kent	188 00	191 50	91 00	126 00	410 70	1,007 20
LAMBTON:						
Bosanquet	135 25	66 00	29 50	28 00	298 20	556 95
Brooke & Alvinston	177 25	90 75	55 75	7 00	353 50	684 25
East Lambton	135 00	143 00	111 75	46 00	383 45	819 20
Florence	182 00	79 55	49 30	28 50	152 85	492 20
Forest	103 00	62 50	74 50	45 00	374 05	659 05
Moore	218 00	201 50	74 25	30 75	280 50	805 00
Petrolia & Enniskillen	249 50	269 25	187 50	68 00	359 90	1,134 15
Plympton & Wyoming	112 25	30 50	94 25	41 25	285 80	564 05
Sombra	91 00	51 50	29 50	13 50	105 40	290 90
West Lambton	Returns incomplete					
LANARK:						
Dalhousie	84 50	60 00	11 25	.....	166 60	322 35
Lanark Tp.	117 50	82 25	11 75	25 75	197 85	435 10
Lanark Village & Bathurst.	180 00	32 25	20 70	27 85	306 18	566 98
Maberly	96 00	35 75	1 25	.....	95 40	228 40
North Lanark	676 80	177 50	63 50	58 00	425 65	1,401 45
Pakenham	210 00	40 00	28 00	18 00	236 75	532 75
South Lanark	328 47	146 44	41 50	36 00	376 03	928 44
LEEDS:						
Brockville	264 06	114 00	35 33	60 67	487 95	962 01
Delta	126 50	125 50	54 50	34 00	287 10	627 60
Frankville	158 75	86 80	81 25	49 25	278 85	654 90
Lansdowne	105 50	84 00	5 50	45 00	236 00	476 00
Lombardy	65 00	78 00	25 00	14 00	277 21	459 21
LENNOX AND ADDINGTON:						
Addington	82 65	54 00	8 00	7 00	37 15	188 80
Amherst Island	63 55	35 30	14 25	7 75	131 15	252 00
Centreville	111 00	71 00	20 00	17 00	57 25	276 25
Ernestown	123 00	40 00	39 50	14 50	144 10	361 10
Lennox	Returns incomplete					
LINCOLN:						
Abingdon	48 50	17 50	45 00	.....	108 80	219 80
Clinton	139 00	85 50	48 75	18 50	379 25	671 00
Monck	95 00	53 00	47 00	5 50	126 00	326 50
Niagara Town & Tp.	(No fair	in 1916)				
Peninsular Central	101 50	37 75	22 75	.....	157 30	319 30

ANALYSIS OF PRIZE MONEY PAID BY AGRICULTURAL SOCIETIES.—Continued.

Societies.	Horses.	Cattle.	Sheep.	Swine.	Miscellaneous.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
MANITOULIN ISLAND:						
Billings	55 25	48 00	39 00	4 00	208 50	354 75
Gore Bay	103 50	70 25	49 00	16 50	340 35	579 60
Howland	49 00	35 00	18 00	15 50	120 00	237 50
Manitowaning	77 25	92 00	27 50	7 00	157 50	361 25
Providence Bay	61 50	30 00	21 50	13 50	161 50	288 00
MIDDLESEX:						
Caradoc	174 00	21 00	17 50	.....	204 45	416 95
Delaware	164 25	113 00	56 00	23 50	233 60	590 35
Dorchester	260 00	190 50	62 50	17 00	117 50	647 50
London Tp.	139 00	58 00	25 50	5 00	118 50	346 00
McGillivray	52 75	16 75	6 00	1 50	75 70	152 70
Melbourne	317 00	89 00	38 00	20 00	229 75	693 75
Mosa & Ekfrid	239 00	191 00	49 50	22 50	215 40	717 40
North Middlesex	115 00	47 00	14 50	4 50	214 90	395 90
Parkhill	106 50	31 50	7 50	7 00	279 75	432 25
Strathroy	401 00	255 00	135 00	64 00	625 10	1,480 10
Thorndale	57 50	82 00	25 25	16 75	145 50	327 00
Westminster	86 50	39 00	36 00	10 00	143 35	314 85
MUSKOKA:						
Baysville	44 00	38 50	27 00	14 00	132 65	256 15
Gravenhurst & Muskoka ..	92 50	92 50	.....	8 50	293 70	487 20
Medora & Wood	83 00	90 50	17 50	11 00	199 25	401.25
Morrison	33 25	29 75	9 75	7 50	87 10	167 35
North Muskoka	108 00	58 75	19 75	10 50	342 75	539 75
South Muskoka	324 00	151 00	99 00	52 00	620 35	1,246 35
Stephenson & Watt	133 00	67 00	16 00	2 50	297 30	515 80
Stisted	53 25	36 75	21 25	9 50	110 50	231 25
NIPISSING:						
Astorville	34 50	36 00	15 00	7 00	87 70	180 20
Bonfield	45 75	23 00	9 00	4 00	116 75	198 50
East Nipissing	185 00	163 25	29 50	35 50	133 00	546 25
Sturgeon Falls	72 50	72 00	12 00	22 00	198 80	377 30
Verner	53 00	190 00	22 00	54 00	147 95	466 95
NORFOLK:						
Charlotteville	139 75	41 75	15 50	7 00	192 05	396 05
Courtland	94 75	47 80	19 75	11 25	128 70	302 25
Houghton	94 25	89 25	39 00	24 25	138 85	385 60
Norfolk Co.	246 00	309 00	70 00	132 50	1,020 85	1,778 35
North Walsingham	93 00	65 00	33 05	12 00	140 50	343 55
Townsend	88 50	31 00	11 50	4 75	105 80	241 55
Windham	128 25	62 75	8 00	8 00	182 70	389 70
NORTHUMBERLAND:						
Alnwick	102 00	80 75	20 50	13 25	144 90	361 40
Brighton	253 50	186 50	102 00	57 00	281 85	880 85
Cobourg Central	181 00	180 50	37 00	12 00	252 10	662 60
Colborne	267 00	128 50	46 50	38 75	322 05	802 80
Cramahe	136 70	101 35	51 00	32 48	148 40	469 93
Percy Tp.	474 00	262 50	156 25	99 75	596 90	1,589 40
Seymour	189 50	131 75	68 00	49 50	203 20	641 95
Wooler	211 50	43 75	12 75	1 75	82 35	352 10
ONTARIO:						
Beaverton	185 00	86 00	62 00	14 00	158 00	505 00
Brock	190 00	143 50	92 00	24 50	256 75	706 75
Pt. Perry, Reach & Scugog.	225 00	122 00	59 60	16 00	312 50	734 50
Ramona	(No Fair)					
Scott	142 00	70 00	29 75	26 50	124 00	392 25
South Ontario	556 00	224 00	104 00	49 00	692 25	1,626 25
Uxbridge	324 00	134 00	84 00	56 00	89 75	687 75

ANALYSIS OF PRIZE MONEY PAID BY AGRICULTURAL SOCIETIES.—Continued.

Societies.	Horses.	Cattle.	Sheep.	Swine.	Miscellaneous.	Total.
OXFORD:	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Drumbo	309 00	111 00	119 00	32 50	454 25	1,025 75
East Nissouri	173 00	30 50	4 50	4 50	130 50	343 00
Ingersoll, N., & W. Oxford.	157 50	96 50	4 00	14 00	222 25	494 25
North Norwich	207 50	109 50	11 75	23 00	370 55	722 30
South Norwich	138 80	24 50	45 00	22 50	215 85	446 65
Tavistock	249 00	72 00	59 00	63 00	206 75	749 75
Tillsonburg & Dereham ...	235 00	120 50	54 00	60 50	221 25	691 25
West Zorra & Embro	226 00	82 00	9 00	27 00	170 75	514 75
Woodstock	372 00	472 00	123 00	126 00	594 00	1,687 00
PARRY SOUND:						
Armour, Ryerson & Burk's Falls	221 00	120 00	59 00	34 00	319 75	753 75
Christie	68 00	45 00	26 50	2 00	232 50	374 00
Loring	38 50	39 50	45 50	16 75	155 50	295 75
Machar	66 75	43 00	22 75	3 00	137 75	273 25
Magnetawan	51 00	39 50	18 50	16 00	206 50	331 50
McKellar	132 00	102 00	57 00	59 50	316 25	666 75
McMurrich	130 25	76 50	27 00	15 50	150 25	399 50
Parry Sound	200 00	162 00	27 25	22 00	434 25	845 50
Perry	139 50	75 00	46 00	7 00	223 25	490 75
Powassan	76 25	66 50	56 00	2 00	264 50	465 25
Rosseau	109 00	83 00	23 00	8 50	209 50	433 00
Strong	95 75	89 00	84 75	.....	197 00	466 50
United Townships	56 50	65 00	50 25	9 50	223 85	405 10
PEEL:						
Albion & Bolton	314 00	108 00	70 00	41 00	354 00	887 00
Caledon	119 00	71 00	43 00	15 00	240 85	488 85
Cooksville	363 00	164 00	67 00	32 50	269 50	896 00
Peel	405 00	172 00	94 75	102 00	810 50	1,584 25
Toronto Gore	(Spring fair only)					
Toronto Tp.	319 91	151 50	46 00	19 00	283 50	819 91
PERTH:						
Elma	71 80	60 42	14 90	25 19	183 45	355 76
Fullarton, Logan & Hibbert	188 00	125 00	56 00	72 00	417 20	858 20
Kirkton	183 50	82 50	43 00	23 00	220 95	552 95
Listowel	126 00	35 00	6 00	24 00	217 65	408 65
Mornington	180 75	106 00	11 00	36 00	274 75	608 50
South Perth	180 50	65 50	57 50	49 00	432 50	785 00
Stratford	363 00	142 00	112 00	18 50	619 65	1,255 15
PETERBOROUGH:						
East Peterborough	205 50	272 50	129 25	81 00	658 10	1,346 35
Galway	35 00	31 50	19 50	10 00	95 55	191 55
Lakefield	126 50	72 50	43 25	23 00	197 65	462 90
Otonabee	192 00	81 00	27 25	19 50	130 95	450 70
Peterborough Industrial ..	737 00	417 00	174 00	210 00	920 75	2,458 75
PRESCOTT:						
Alfred	61 50	45 50	13 60	17 50	188 55	326 55
South Plantagenet	141 40	125 50	13 00	22 50	121 10	423 50
Vankleek Hill	209 00	361 50	59 00	40 00	402 75	1,072 25
PRINCE EDWARD:						
Ameliasburg	111 25	85 50	40 50	13 25	273 75	524 25
Prince Edward	422 00	408 00	99 00	62 00	785 84	1,776 84
Sophiasburg	108 50	57 25	21 75	12 00	211 40	410 90
RAINY RIVER:						
Atwood	186 00	45 50	6 00	43 00	358 50	629 00
Rainy River Valley	281 00	104 00	41 00	36 50	414 50	877 00
RENFREW:						
Arnprior	318 50	190 50	30 50	5 00	314 25	858 75
Cobden	228 25	118 50	48 50	22 75	260 25	678 25
North Renfrew	350 00	195 00	66 00	24 00	460 35	1,095 35
Renfrew	712 00	268 20	74 00	46 50	709 89	1,810 59
RUSSELL:						
Casselmann	73 50	48 75	8 00	.....	48 50	178 75
Clarence	107 75	51 25	19 50	6 50	105 60	290 60
Russell	200 00	161 75	58 00	24 50	240 00	684 25

ANALYSIS OF PRIZE MONEY PAID BY AGRICULTURAL SOCIETIES.—Continued.

Societies.	Horses.	Cattle.	Sheep.	Swine.	Miscellaneous.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
SIMCOE:						
Alliston	190 00	29 00	23 00	17 00	281 00	540 00
Barrie	361 00	131 00	115 00	71 00	616 25	1,294 25
Beeton	117 00	105 00	65 00	34 00	260 25	581 25
Bradford & W. Gwillimbury	30 00	42 00	41 25	10 50	190 30	314 05
Coldwater	120 00	110 00	46 00	20 00	264 25	560 25
Cookstown	188 00	52 00	94 50	34 00	241 50	610 00
East Simcoe	(No fair)					
Flos Tp.	131 50	73 50	45 00	7 00	295 20	552 20
Nottawašaga & G. Northern	198 00	78 00	114 00	31 00	390 50	811 50
Oro	220 00	94 00	65 00	9 00	233 00	621 00
Tiny & Tay	105 00	27 00	39 00	11 00	236 25	418 25
STORMONT:						
Cornwall	242 50	259 50	44 00	13 50	442 25	1,001 75
Finch	81 00	20 25	.....	4 00	103 90	209 15
Roxborough	186 75	171 00	20 75	8 00	222 35	608 85
Stormont	160 00	94 75	33 00	12 00	140 85	440 60
SUDBURY:						
Martland & Cosby	40 50	41 00	.....	12 50	68 20	162 20
Massey	101 00	103 70	42 44	24 00	174 00	445 14
Warren	82 00	85 00	34 00	27 00	73 72	301 72
TEMISKAMING:						
Charlton	34 00	41 50	5 50	4 00	223 15	308 15
Cochrane	(No fair)					
Englehart	48 00	33 00	29 75	15 00	199 00	324 75
Matheson	(No fair)					
New Liskeard	98 50	49 00	10 75	14 75	458 70	631 70
THUNDER BAY:						
Oliver	122 50	117 00	.....	9 00	241 00	489 50
West Algoma	(No fair)					
Whitefish Valley	5 00	9 00	.....	6 50	152 83	173 33
VICTORIA:						
Eldon	132 50	49 00	28 25	8 70	153 30	371 75
Fenelon	163 50	96 00	25 00	17 00	200 20	501 70
Mariposa	114 00	87 00	51 50	11 00	126 00	389 50
North Victoria	13 30	.....	.....	.....	64 70	78 00
South Victoria	752 00	729 00	401 00	148 00	775 00	2,805 00
Verulam	203 75	112 75	54 00	45 25	228 10	643 85
WATERLOO:						
Elmira & Woolwich	153 00	59 00	33 00	27 00	214 30	486 30
South Waterloo	530 00	125 00	177 00	66 00	680 75	1,578 75
Wellesley & N. Easthope ..	222 50	87 00	71 00	36 00	236 55	653 05
Wilmot	287 00	85 00	60 00	31 00	346 25	809 25
WELLAND:						
Bertie	163 00	83 66	25 00	18 00	146 25	435 91
Fenwick	177 00	110 25	94 00	27 00	458 65	866 90
Stamford & Niagara Falls.	160 00	60 00	10 00	5 00	99 45	334 45
Thorold Town & Tp. ....	.....	.....	.....	.....	146 65	146 65
Wainfleet	82 75	52 50	26 00	1 00	178 60	340 85
Welland	432 00	210 00	90 00	26 20	566 00	1,324 20
WELLINGTON:						
Arthur	208 50	85 50	23 50	24 25	248 50	590 25
Centre Wellington	237 00	254 00	60 50	20 00	510 25	1,081 75
Erin	229 25	172 50	62 75	45 00	502 95	1,012 45
Guelph & S. Wellington ..	(No fair)					
Maryborough	(No fair)					
Mt. Forest	327 00	187 50	104 00	47 00	321 50	987 00
Palmerston	134 00	60 50	30 00	5 00	179 75	409 25
Peel & Drayton	197 00	37 50	37 50	19 50	181 00	472 50
Puslinch	155 50	75 00	45 50	14 00	216 25	506 25
Rockwood	203 00	154 50	40 50	10 00	236 00	644 00
West Wellington	(No fair)					

ANALYSIS OF PRIZE MONEY PAID BY AGRICULTURAL SOCIETIES.—*Concluded.*

Societies.	Horses.	Cattle.	Sheep.	Swine.	Miscellaneous.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
WENTWORTH:						
Ancaster	190 00	90 00	75 00	35 00	330 50	720 50
Binbrook	90 50	26 50	24 00	.....	126 25	267 25
Hamilton and Wentworth..	(No fair)					
Rockton	485 00	100 50	86 50	40 50	428 75	1,141 25
Waterdown	148 00	94 00	.....	14 00	261 25	517 25
West Flamboro	67 60	23 40	8 40	6 60	136 30	242 30
YORK:						
Markham	657 40	544 00	311 00	104 00	961 25	2,577 65
Newmarket	264 50	195 00	211 00	93 00	565 50	1,329 00
Queensville	96 00	77 00	49 00	12 00	131 70	365 70
Richmond Hill	381 00	41 00	36 00	73 00	114 70	645 70
Scarboro	344 50	194 00	61 00	32 00	460 00	1,091 50
Schomberg	270 00	96 50	37 00	26 00	378 15	807 65
Sutton	195 00	40 00	30 00	24 00	163 75	452 75
Weston, York & Etobicoke.	300 00	61 00	34 00	27 00	381 00	803 00
Woodbridge	586 00	111 00	205 00	73 50	836 75	1,812 25
INDIAN SOCIETIES:						
Six Nations	125 00	68 75	16 75	21 75	311 55	543 80
United Indians	34 50	6 75	.....	3 00	45 50	89 75
CITIES:						
Canadian National (Toronto)	9,548 00	11,532 00	3,276 00	2,682 00	12,400 25	39,438 25
Central Canada (Ottawa) ..	5,267 50	3,425 00	1,437 00	734 00	4,817 25	15,680 75
Western Fair (London)	4,801 50	4,164 00	1,941 50	1,775 00	6,204 24	18,868 24
	78,031 88	52,776 94	22,793 82	14,719 39	110,546 10	278,868 13

REPORTS OF STOCK SOCIETIES.

Societies.	RECEIPTS.					EXPENDITURE.			
	Legislative grant.	Members' fees for 1916.	Municipal grant.	Sale of stock.	Total actual receipts.	Purchase of live stock.	Keep of stock.	Officers' salaries.	Total actual expenditure.
	\$	\$	\$	\$	\$	\$	\$	\$	\$
Colchester North	290	306	150	.....	865	150	135	10	309
Drummond	90	61	50	164	415	105	157	10	354
Dummer and Douro	170	195	.....	348	1,052	615	543	12	1,171
Emily	166	160	50	72	458	155	193	17	371
Lakehurst	170	61	.....	.....	293	185	.....	.....	186
Oldcastle	360	497	150	58	1,065	392	265	22	707
Osgoode	240	70	.....	147	611	193	462	10	669
South Woodslee	697	703	150	.....	1,646	1,102	311	54	1,586
	2,183	2,053	550	789	6,405	2,897	2,066	135	5,353

CARLETON.—Continued.

Metcalfe	315	425	328	91	54	373	2,049	780	85	125	881	2,034	9,300
DUFFERIN:													
Dufferin	247	350	487	129	530	547	2,842	858	348	123	913	2,870	5,700
Dufferin Central	294	250	264	102	82	622	2,170	916	315	133	978	2,500	4,950
East Luther	233	275	79	100	96	540	2,109	860	225	80	955	1,970	5,600
DUNDAS:													
Dundas	79	.....	196	60	91	651	1,382	193	644	80	365	1,558	1,675
Mountain	200	50	149	68	154	483	1,562	500	244	50	581	1,496	2,500
Winchester	290	.....	371	101	175	874	3,204	1,142	378	100	1,238	2,671	5,170
DURHAM:													
Cartwright	132	41	2	64	94	163	568	397	.....	33	423	568	.....
Clarke Tp.	264	142	81	94	48	537	1,558	916	44	50	967	1,475	2,750
Millbrook	365	289	54	106	61	666	2,121	1,125	175	115	1,173	2,182	5,950
Port Hope	354	310	167	124	147	722	2,405	1,407	244	83	1,475	2,225	1,441
West Durham	400	274	172	117	74	867	2,679	1,427	292	155	1,498	2,576	6,190
ELGIN:													
Aldboro	226	130	78	88	49	541	1,701	665	290	76	722	1,728	6,862
Shedden	67	113	12	34	19	207	556	257	3	32	257	505	110
South Dorchester	169	164	22	39	135	307	1,060	503	179	70	596	1,085	.....
Straffordville	88	43	5	10	80	205	509	284	120	30	305	549	690
West Elgin	328	141	83	103	42	641	1,726	1,037	143	64	1,061	1,988	2,600
ESSEX:													
Amherstburg, Anderson & Malden	184	350	80	65	57	292	1,167	611	63	40	673	1,163	2,100
Colchester South	186	150	.....	74	70	545	1,190	734	120	64	775	1,225	2,800
Comber	152	195	48	77	46	182	984	368	20	56	437	762	4,870
Essex County	598	480	278	134	157	1,021	3,359	1,709	195	175	1,789	3,310	5,100
Mersea, Leamington & S. Gosfield	410	250	180	142	912	1,531	5,376	1,502	569	81	1,552	11,256	15,200
Windsor	618	1,550	500	90	91	1,289	6,571	2,310	1,665	620	2,425	6,866	13,675
FRONTENAC:													
Frontenac	138	50	14	53	22	240	508	372	.....	25	372	496	.....
Kennebec	82	50	.....	24	18	32	210	138	10	22	175	225	.....
Kingston Industrial	234	400	245	90	166	2,288	4,190	1,134	565	316	1,338	4,325	.....
Parham	159	50	17	52	27	187	568	258	125	23	279	570	800
Storrington	89	50	61	28	41	204	585	285	42	20	291	577	1,250
Wolfe Island	84	75	143	42	49	222	693	329	185	30	376	808	.....
GLENGARRY:													
Glengarry	142	60	62	76	62	719	1,733	657	448	70	669	1,722	.....
Kenyon	160	50	131	74	66	474	1,242	498	60	35	530	961	2,500
St. Lawrence Valley	270	.....	101	115	191	741	1,551	896	.....	45	944	1,219	3,620
GRENVILLE:													
Kemptville	200	150	109	65	91	413	1,277	409	259	50	460	1,223	1,625
Merrickville	191	150	45	268	19	270	1,127	458	37	77	486	1,166	1,675
South Grenville	223	150	285	62	40	330	1,474	458	252	150	493	1,247	50
Spencerville	128	128	24	70	46	528	1,422	433	247	50	471	1,568	1,700

REPORT OF AGRICULTURAL SOCIETIES IN ONTARIO, SHOWING RECEIPTS AND EXPENDITURE FOR THE YEAR 1916.

Societies.	Receipts.						Expenditure.						
	Legislative grants.	Municipal grants.	Cash donations.	Members' fees retained from 1915.	Members' fees paid in 1916.	Gate receipts at exhibitions.	Total actual receipts.	Total prize money paid in cash.	Special attractions.	Officers' salaries.	Total expenditure for agricultural purposes.	Total actual expenditure.	Value of land and buildings.
GREY:	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Ayton	133	165	52	62	16	134	584	419	28	34	420	554	37
Collingwood Tp.	142	175	61	66	34	222	770	412	38	50	452	744	425
Desboro	168	115	34	97	168	177	829	583	29	38	603	854	250
East Grey	120	95	.....	44	20	44	683	312	86	53	324	598	1,765
Egremont	157	90	90	78	28	246	851	472	27	32	482	897	2,230
Hanover, Bentinck & Brant	154	135	115	68	32	511	1,252	444	95	60	460	1,054	10,500
Holland	139	130	36	71	125	107	800	439	46	30	518	835	200
Keppel	87	25	13	55	26	37	467	192	.....	52	286	509	75
Kilsyth	217	135	88	101	262	284	1,258	685	.....	35	750	1,054	2,530
Markdale	194	75	128	85	76	521	1,460	673	197	88	751	1,408	382
Meaford & St. Vincent	200	315	146	81	40	302	1,804	672	30	65	730	1,559	12,050
Normanby	93	100	8	74	27	112	470	306	25	28	331	483	.....
Osprey	132	115	.....	67	18	335	882	409	98	47	453	809	915
Owen Sound	365	375	321	136	77	1,014	2,511	1,150	432	172	1,193	2,439	4,200
Priceville	109	90	3	39	31	140	569	283	68	31	341	546	850
Proton	220	75	128	113	67	126	1,283	670	15	70	777	1,944	4,300
Rocklyn	164	125	1	56	80	330	1,053	492	23	56	577	955	3,725
South Grey	164	75	53	72	41	272	1,118	527	83	60	571	1,070	4,300
Sydenham	100	125	.....	67	51	67	410	307	.....	38	308	441	500
Walter's Falls	167	130	94	62	100	137	992	415	48	50	499	937	1,300
HALDIMAND:													
Caledonia	547	50	32	93	98	709	2,549	1,839	530	258	1,885	3,819	8,611
Canboro	51	75	22	34	34	63	307	204	8	10	204	303	1,000
Dunnville	168	125	15	65	92	894	1,578	513	334	100	513	1,225	7,000
Haldimand	205	120	148	.....	237	293	1,367	608	341	93	681	1,429	3,400
Southern Branch	123	75	57	.....	130	221	641	366	25	37	378	586	400
Walpole .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
HALBURTON:													
Glamorgan	65	.....	.....	12	.....	4	80	68	.....	.....	68	80	270
Haliburton	275	35	.....	50	50	122	609	329	151	35	342	580	.....
Minden	266	.....	7	41	14	99	446	332	.....	20	350	513	835

HALTON:													
Acton	276	.....	102	59	276	376	1,301	754	193	75	768	1,519	210
Esquesing	256	.....	160	92	25	476	1,129	766	40	79	766	1,360	.....
Halton	384	100	398	89	153	961	2,750	1,244	335	185	1,304	2,513	10,700
Nelson & Burlington	212	175	336	80	542	431	1,818	711	40	75	767	1,589	211
Trafalgar	222	400	642	86	72	691	2,577	924	126	140	924	3,014	15,000
HASTINGS:													
Bancroft	230	.....	33	63	38	442	929	459	.....	74	491	733	1,750
Belleville	363	200	269	63	81	664	2,248	1,077	90	128	1,117	2,271	.....
Frankford	276	.....	294	70	52	515	1,439	722	33	100	811	1,568	5,200
Madoc	245	.....	174	129	32	709	1,747	842	98	85	963	1,764	206
Marmora	120	45	38	57	28	304	817	339	145	50	353	806	1,640
Maynooth	168	.....	19	23	.....	81	357	158	.....	20	189	299	.....
Shannonville	146	20	51	46	65	474	907	486	151	70	524	927	500
Stirling	195	20	147	80	18	423	1,265	493	64	74	618	1,131	605
Tweed	207	.....	108	108	46	817	1,503	665	154	75	711	1,373	.....
Wollaston	159	35	76	49	36	172	663	294	.....	25	345	550	2,075
HURON:													
Bayfield	97	45	37	60	73	225	723	356	77	32	356	623	1,450
Blyth	134	80	63	83	93	410	1,027	441	120	50	469	959	2,800
Dungannon	132	25	.....	121	29	475	1,048	433	205	64	441	1,094	.....
East Huron	231	45	45	115	109	789	1,760	624	364	75	670	1,511	5,700
Exeter	213	70	5	83	155	462	1,118	698	38	59	754	1,171	3,175
Goderich Industrial	258	125	62	91	91	856	2,239	787	717	100	830	2,277	.....
Howick	127	50	8	64	63	368	782	487	25	35	561	805	720
Seaforth	215	25	12	109	132	457	1,250	647	65	65	669	1,249	2,340
South Huron	(Spring Fair only)	.....	.....	.....	.....	.....	.....	.....	.....	50	616	1,690	1,430
Turnberry	168	95	271	97	133	515	1,799	588	.....	44	444	783	1,600
Zurich	117	30	.....	79	75	253	690	432	66	.....	.....	.....	.....
KENORA:													
Dryden	425	50	58	56	22	69	766	389	.....	55	439	711	1,100
Kenora	545	225	151	.....	146	203	1,576	602	.....	216	652	1,849	247
KENT:													
Camden	128	145	47	64	89	351	966	435	80	69	454	887	3,200
East Kent	229	100	78	117	108	570	1,534	742	415	120	855	1,713	6,150
Harwich	189	275	39	81	81	586	1,713	685	191	109	762	1,447	3,750
Howard	297	150	15	117	70	1,700	2,797	1,153	278	125	1,213	2,110	6,030
Orford	223	150	35	97	97	328	1,320	852	32	60	932	1,374	3,000
Raleigh and Tilbury	136	150	81	55	131	160	922	434	68	51	473	874	2,800
Romney and Wheatley	132	175	.....	83	105	360	928	400	100	61	407	1,024	3,300
Wallaceburg	126	198	7	49	73	248	1,057	374	137	75	436	1,696	5,125
West Kent	388	385	206	75	75	1,458	3,679	1,007	741	253	1,078	3,396	12,750
LAMINGTON:													
Bosanquet	176	165	42	81	104	252	997	557	97	50	617	995	3,500
Brooke & Alvinston	263	200	49	100	52	712	1,819	684	64	80	804	1,725	6,925

REPORT OF AGRICULTURAL SOCIETIES IN ONTARIO, SHOWING RECEIPTS AND EXPENDITURE FOR THE YEAR 1916.

Societies.	Receipts.					Expenditure.							
	Legislative grants.	Municipal grants.	Cash donations.	Members' fees retained from 1915.	Members' fees paid in 1916.	Gate receipts at exhibitions.	Total actual receipts.	Total prize money paid in cash.	Special attractions.	Officers' salaries.	Total expenditure for agricultural purposes.	Total actual expenditure.	Value of land and buildings.
NORFOLK—Continued.													
North Walsingham	109	.....	46	44	106	162	528	344	.....	52	387	564	\$ 475
Townsend	73	.....	38	.....	92	84	553	242	75	75	243	590	1,800
Windham	96	.....	16	19	101	155	581	390	.....	45	451	645	325
NORTHUMBERLAND:													
Alnwick	136	42	13	40	20	200	480	361	.....	45	417	594	800
Brighton	220	119	237	96	79	534	1,538	881	136	50	881	1,503	.....
Cobourg Central	267	83	120	66	17	480	1,161	663	171	95	694	2,040	20,700
Colborne	271	84	194	55	60	444	1,118	803	10	47	874	1,128	825
Cramahe	159	99	90	80	15	234	757	470	65	42	488	775	850
Percy Tp.	352	309	213	104	47	1,033	2,324	1,589	.....	75	1,625	3,156	4,450
Seymour	185	158	59	87	221	753	1,572	642	175	102	765	1,409	2,450
Wooler	114	110	81	57	37	324	854	352	.....	35	429	622	400
ONTARIO:													
Beaverton	162	200	103	62	124	482	2,526	505	826	28	567	2,391	7,300
Brook	226	100	182	71	49	322	1,291	707	308	55	715	1,459	.....
Port Perry, Reach & Scugog	160	.....	148	44	86	226	1,065	734	35	4	745	1,095	.....
Ramona	Nofair	20	122	36	40	172	756	392	.....	52	440	844	.....
Scott		126	702	130	110	2,156	4,818	1,626	852	160	1,627	4,152	7,750
South Ontario		485	250	69	46	649	1,335	688	72	154	688	1,519	.....
Uxbridge	230	25	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oxford:													
Drumbo	297	50	32	64	62	538	1,330	1,026	.....	77	1,054	1,422	315
East Nissouri	85	.....	110	24	263	108	814	343	91	54	411	875	.....
Ingersoll N. & W. Oxford	148	100	163	.....	222	656	1,656	494	272	110	495	1,197	2,600
North Norwich	202	85	353	61	161	222	1,486	722	181	65	748	1,553	2,000
South Norwich	140	.....	30	.....	170	201	744	447	150	52	498	860	230
Tavistock	222	14	10	102	48	397	1,007	750	199	51	791	1,246	200
Tillsonburg & Dereham	225	.....	.....	51	212	731	1,694	691	448	155	703	1,696	7,800
West Zorra and Embro	157	.....	5	64	242	314	908	515	20	37	630	875	635
Woodstock	501	200	785	63	310	1,403	4,489	1,687	862	220	1,711	4,310	20,400

PARRY SOUND:

Armour, Ryerson & Burk's Falls.	602	100	258	93	27	155	1,507	704	48	79	891	1,412	3,235
Christie	171	.....	.....	35	35	20	439	374	.....	22	399	513	195
Loring	208	93	.....	49	6	30	472	296	12	24	327	466	350
Machar	331	50	174	40	22	62	885	273	.....	35	348	693	2,825
Magnetawan	366	50	36	58	16	34	706	331	16	29	406	567	650
McKellar	452	25	13	114	36	57	1,063	667	.....	24	754	1,049	1,715
McMurrich	373	10	59	50	15	55	706	399	.....	59	473	739	1,200
Parry Sound	448	290	289	60	101	340	2,165	845	311	75	863	2,156	2,445
Perry	408	.....	85	63	39	38	879	491	.....	59	590	909	1,336
Powassan	414	.....	65	59	10	108	887	465	.....	62	558	792	.....
Rosseau	275	15	45	49	51	76	695	433	.....	42	519	871	.....
Strong	397	.....	35	52	5	113	718	466	.....	30	548	800	.....
United Townships	242	.....	42	52	10	23	575	405	.....	20	437	609	.....
PEEL:													
Albion & Bolton	268	300	83	111	28	488	1,519	887	106	70	945	1,464	2,200
Caledon	161	230	76	61	99	240	950	489	97	86	497	910	733
Cooksville	247	75	202	134	70	626	1,479	896	48	90	931	1,771	600
Peel	436	435	301	103	256	823	3,042	1,584	270	184	1,622	3,225	5,250
Toronto Gore	(Spring Fair only)												
Toronto Tp.	381	275	55	136	106	338	1,634	820	208	108	883	1,789	2,800
PERTH:													
Elma	119	41	32	77	28	119	649	356	38	62	362	720	1,450
Fullarton, Logan & Hibbert	232	276	30	110	83	385	1,483	858	88	87	933	1,702	1,514
Kirkton	166	103	47	85	236	104	991	553	25	79	637	1,055	2,475
Listowel	142	29	104	89	24	353	1,054	409	90	15	476	863	2,000
Mornington	189	77	.....	82	226	283	1,245	608	30	91	608	1,087	4,050
South Perth	182	267	60	59	199	515	1,594	785	129	100	809	1,648	5,800
Stratford	298	107	46	120	266	1,040	3,273	1,255	1,082	10	1,323	4,496	.....
PETERBOROUGH:													
East Peterborough	363	175	81	99	48	1,159	2,223	1,346	170	104	1,403	2,281	3,210
Galway	78	85	.....	35	21	111	338	192	.....	25	192	334	2,600
Lakefield	126	175	36	76	24	386	1,145	463	123	25	475	1,080	4,422
Otonabee	142	75	56	83	27	267	811	451	80	35	487	794	1,110
Peterborough Industrial	672	675	95	153	118	3,261	6,087	2,459	1,505	135	2,508	6,738	.....
PRESBOTT:													
Alfred	99	25	101	100	55	306	798	327	30	40	352	674	2,400
South Plantagenet	107	25	93	46	14	302	641	423	28	40	429	594	275
Vankleek Hill	362	25	149	101	106	1,196	2,153	1,072	.....	102	1,186	1,853	8,500
PRINCE EDWARD:													
Ameliasburg	148	.....	33	63	42	421	874	524	.....	77	617	919	.....
Prince Edward	519	1,000	591	62	479	2,010	5,738	1,777	1,044	205	1,890	5,027	24,800
Sophiasburg	115	.....	61	63	27	223	549	411	.....	25	444	596	.....

REPORT OF AGRICULTURAL SOCIETIES IN ONTARIO SHOWING RECEIPTS AND EXPENDITURE FOR THE YEAR 1916.

Societies.	Receipts.						Expenditure.						
	Legislative grants.	Municipal grants.	Cash donations.	Members' fees retained from 1915.	Members' fees paid in 1916.	Gate receipts at exhibitions.	Total actual receipts.	Total prize money paid in cash.	Special attractions.	Officers' salaries.	Total expenditure for agricultural purposes.	Total actual expenditure.	Value of land and buildings.
RAINY RIVER:													
Atwood	233	200	601	66	120	71	1,407	639	\$ 42	\$ 50	\$ 695	\$ 1,171	\$
Rainy River Valley	750	225	618	107	20	135	2,227	877	.....	50	949	1,674	3,550
RENFREW:													
Arnprior	227	325	324	59	233	459	4,057	859	90	30	1,055	4,352	5,200
Cobden	200	165	220	142	26	521	2,153	678	61	79	1,779	1,908	7,350
North Renfrew	354	100	219	88	167	926	2,359	1,095	51	108	1,194	2,226	19,350
Renfrew	633	675	230	28	332	3,149	7,766	1,811	592	400	1,912	8,812	23,700
RUSSELL:													
Casselman	63	100	117	31	90	56	673	179	235	35	213	837	5,300
Clarence	100	25	.....	52	25	284	514	291	.....	50	303	485	990
Russell	242	75	241	82	56	768	1,676	684	238	67	728	2,253	4,428
SIMCOE:													
Alliston	175	.....	65	73	86	751	1,290	540	252	35	561	1,201	.....
Barrie	412	150	264	148	52	1,876	3,657	1,294	225	185	1,366	3,894	.....
Beeton	179	40	227	96	71	196	1,176	581	135	84	605	1,146	2,550
Bradford & W. Gwillimbury	199	50	100	98	41	472	1,440	314	295	75	347	1,235	6,000
Coldwater	155	105	147	62	18	465	1,180	560	97	50	570	1,152	2,575
Cookstown	202	85	85	124	25	346	1,168	610	113	90	623	1,170	1,330
East Simcoe (No Fair)	179	50	71	66	31	678	1,467	552	406	110	573	1,995	4,425
Flos Tp.	246	350	280	83	46	1,357	2,757	811	633	125	900	2,726	.....
Nottawasaga & Great Northern	178	75	157	97	95	341	1,013	621	15	50	636	854	400
Oro	176	120	141	52	25	632	1,189	388	242	85	405	992	.....
Tiny & Tay													
STORMONT:													
Cornwall	286	525	367	124	166	1,407	3,253	1,002	826	250	1,066	3,035	3,250
Finch	81	.....	61	42	53	168	505	209	32	16	235	534	300
Roxborough	158	75	172	72	134	444	1,131	609	126	20	640	1,108	650
Stormont	129	100	152	.....	112	343	861	441	.....	22	459	741	525

REPORT OF AGRICULTURAL SOCIETIES IN ONTARIO, SHOWING RECEIPTS AND EXPENDITURE FOR THE YEAR 1916.

Societies.	Receipts.						Expenditure.						
	Legislative grants.	Municipal grants.	Cash donations.	Members' fees retained from 1915.	Members' fees paid in 1916.	Gate receipts at exhibitions.	Total actual receipts.	Total prize money paid in cash.	Special attractions.	Officers' salaries.	Total expenditure for agricultural purposes.	Total actual expenditure.	Value of land and buildings.
WENTWORTH:													
Ancaster	\$ 178	\$ 225	\$ 130	\$ 46	\$ 131	\$ 518	\$ 1,613	\$ 720	\$ 212	\$ 100	\$ 784	\$ 1,462	\$ 4,380
Binbrook	85	65	205	52	56	116	660	267	71	40	276	571	.....
Hamilton & Wentworth	(No Fair)												
Rockton	333	150	140	.....	310	835	2,562	1,141	241	125	1,143	2,832	150
Waterdown	192	120	181	53	92	235	1,165	517	30	40	542	1,106	.....
West Flamboro	131	100	88	61	57	92	771	242	9	82	267	739	127
YORK:													
Markham	744	200	638	178	113	2,075	9,649	2,578	759	310	2,625	11,974	18,550
Newmarket	450	200	718	119	82	1,072	3,798	1,329	878	175	1,329	3,612	9,350
Queensville	122	65	142	42	85	91	568	366	25	35	366	560	.....
Richmond Hill	188	85	136	68	66	564	1,536	646	150	79	664	1,605	2,925
Scarboro	328	100	906	115	79	345	6,488	1,091	30	115	1,142	6,601	5,124
Schomberg	256	85	159	82	40	216	1,406	808	71	53	834	1,442	2,500
Sutton	140	55	203	62	74	285	1,053	453	160	60	453	1,159	2,400
Weston, York & Etobicoke	232	150	270	78	95	781	2,132	803	375	106	812	2,258	1,800
Woodbridge	502	275	236	102	14	1,670	3,440	1,812	75	200	1,847	4,316	15,700
INDIAN SOCIETIES:													
Six Nations	100	.....	39	51	93	902	1,498	544	353	94	575	1,317	3,075
United Indian	100	.....	.....	22	5	26	178	90	5	16	140	178	.....
Totals	75,324	41,926	40,673	25,726	28,197	144,050	472,568	204,790	50,432	24,668	219,726	488,760	782,639

APPENDIX
TO
ANNUAL REPORT
OF THE
Agricultural Societies
OF THE
PROVINCE OF ONTARIO
1917

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS AND
PRIZE-WINNING GRAIN AT WINTER FAIRS
THE CANADIAN NATIONAL AND CENTRAL CANADA EXHIBITIONS

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO:
Printed by A. T. WILGRESS, Printer to the King's Most Excellent Majesty
1918

Printed by
WILLIAM BRIGGS
Corner Queen and John Streets
TORONTO

APPENDIX

TO

REPORT OF AGRICULTURAL SOCIETIES

1917

The Standing Field Crop Competitions conducted by the Agricultural and Horticultural Societies' Branch of the Department of Agriculture for 1917 are continuing to meet with the approval and support of the farmers of Ontario. The highly educational value of these competitions, particularly in the production of much-needed high-class seed and larger crops, is clearly manifested. Noxious weeds and fungus diseases, which had become such a detriment to successful farming operations throughout the land have, in so far as the competitors in the Standing Field Crop Competitions are concerned, been materially reduced on a large percentage of the farms, and, in many instances that could be mentioned, absolutely clean farming has resulted. The farmers who enter these Competitions have learned by experience that the fields carefully cultivated and sown with pure seed grain have amply repaid their efforts. Not only do they have the high honor of winning the splendid prizes offered, but great financial benefits have accrued from the increased prices received for the grain from their prize-winning fields.

In this Appendix will be found the names and addresses of the competitors, together with the list of prize winners, the scores obtained and the names of varieties of the grain and potatoes.

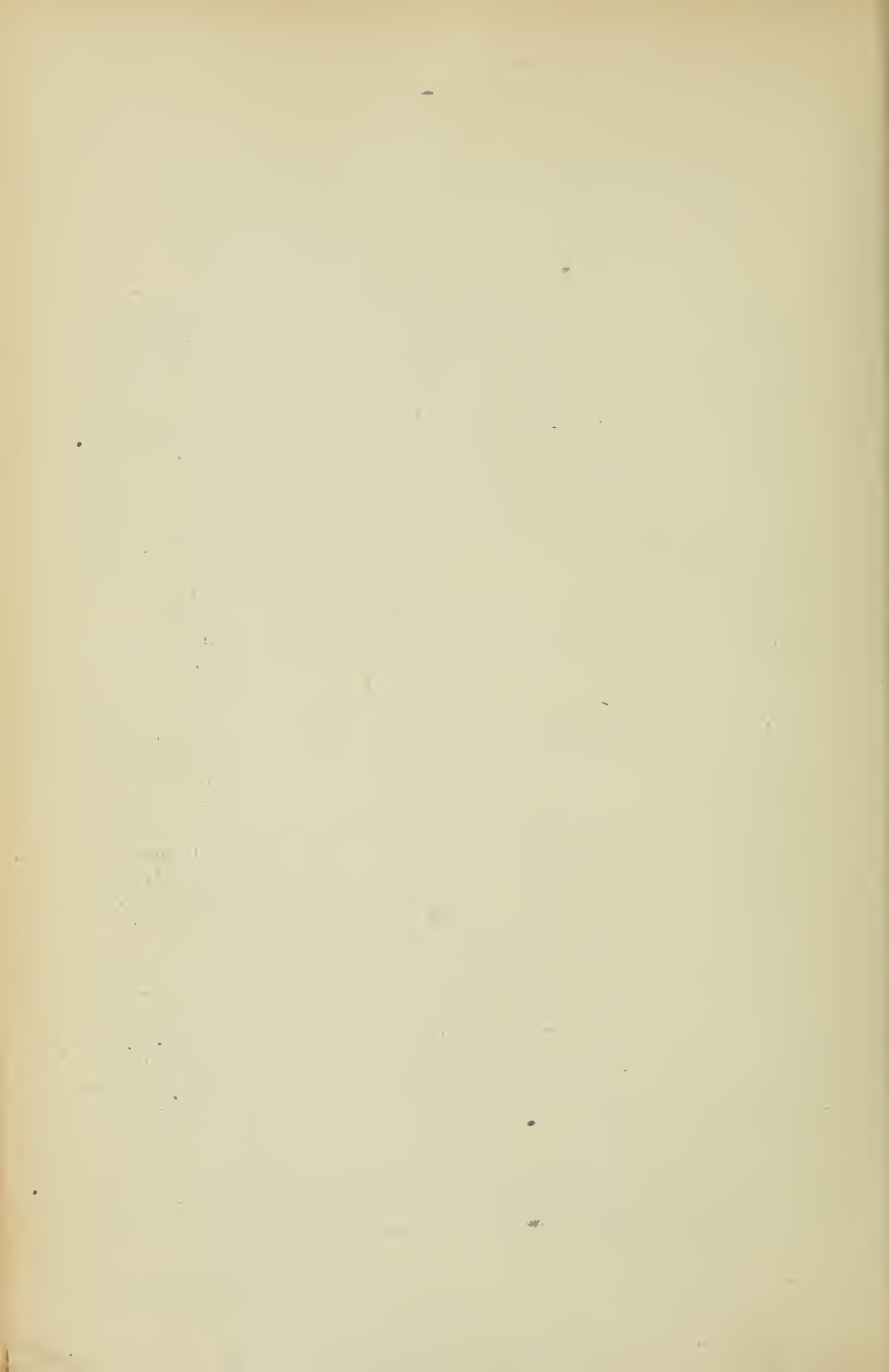
In 1917 Societies were allowed to compete in two crops. One hundred and eighty-five entered, 102 in two crops and 83 in one; 159 in oats, 50 in potatoes, 44 in corn, 9 in spring wheat, 5 in fall wheat, 5 in barley, 5 in mangolds, 4 in turnips, 3 in peas, 1 in beans and 1 in clover. Seven thousand farmers took part in these competitions.

The first five prize winners competed as usual at the Canadian National, Central Canada, and Eastern and Western Provincial Seed Fairs. The quality of the exhibits was never surpassed. The highest prices ever obtained for grain at a Provincial Seed Fair were realized at the sale at Guelph Winter Fair. The prize oats sold at \$5.50 per bushel, corn at \$8, barley \$3.25, peas \$5.25, fall wheat \$3.25, red clover \$20.50, alsike \$18.50, beans \$11.50 and potatoes realized \$4.

In previous reports I have referred to the value of farming communities selecting and specializing in the best varieties of grain and potatoes for their different sections. All those entering these competitions should secure and sow as nearly as possible the same varieties. The officers of an Agricultural Society should decide that those entering a competition should confine their efforts to the production of not more than three varieties of grain and potatoes. The early and late varieties of potatoes found to be generally most satisfactory in Ontario are Irish Cobbler and Green Mountain, respectively. Early Ohio has proved to be one of the best early varieties for market gardeners.

The weeds found in the different fields judged are given, and, by referring to the key on page 125, those interested will find full information in this regard. A circular issued by the Federal Department of Agriculture on Black or Stem-Rust on wheat is given on page 126.

J. LOCKIE WILSON,
Superintendent.



RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	*Weeds in competitors' fields.
ALGOMA.		(20)	(25)	(10)	(20)	(25)	(100)	
CENTRAL ALGOMA AGR. SOCIETY.								
Judge—Jas. H. McKee, Shelburne, R.R. 4.								
W. G. Alderson, Sault Ste. Marie, R.R. 2	O. A. C. 72.....	17½	22½	8½	18½	22½	89½	15
Chas. A. Somes, Goulais River.	do	17	22½	8½	18	23	89	10, 13
C. W. Eggesfield, S. S. Marie.	Banner.....	16	22½	8½	19½	22	88½	15
E. Allen, do R.R. 1	Daubeney.....	15½	24	8½	19	21	88	
N. J. McAuley, Goulais Bay ...	O. A. C. 72.....	16½	21	8½	18½	23	87½	
J. A. McQueen, S. S. Marie, R.R.1	Amer. Wonder...	15	24	9	19½	18	85½	
David Fleming, do	Scottish Chief...	16	22	8½	18	19½	84	
G. H. Farmer, do R.R. 2	Banner.....	14½	24	8½	18½	18	83½	
R. C. Wigle, do R.R. 2	do	15	21	8	19	19½	82½	
Alex. Toles, do R.R. 1	Amer. Banner...	13½	22	9	19	16½	80	
Jas. Cooper, do	Abundance.....	12½	21	9	18	18½	79	15
Thos. Avery, do R.R. 1	Banner.....	14	22½	8	15	19	78½	
Henry Knight, Jr., do R.R. 1	do	11½	23½	9	13	21	78	15
Harry Yates, do	Abundance.....	14½	20	8	14	20½	77	1
John A. Moore, do R.R. 1	Banner.....	13½	17	9	15	19	73½	13, 15
NORTH SHORE AGR. SOCIETY.								
Judge—Jas. H. McKee, Shelburne, R.R. 4.								
Chas. A. Hurley, Echo Bay	Northland.....	17½	22	9	18½	23	90	
Alex. Brodie, Bar River	O. A. C. 72.....	17½	22½	8	18½	21½	88	
J. A. Davidson, MacLennan	Imp. Ligowa....	16½	21½	9½	17½	21½	86½	4
Carson Moore, MacLennan	do	16	20	9	18	21	84	15, 13
Alex. Stewart, Bar River	Northland.....	18	15	9	18	23½	83½	
H. S. Chappell, do	do	15½	21	9	15	22½	83	15, 4
G. W. Evoy, do	O. A. C. 72.....	15½	20½	9	18½	19	82½	4
E. V. Evoy, do	Dodd's Irish White.....	16½	21½	9½	12	22	81½	9
Jno. W. Booth, do	Granary Filler...	14½	21	8½	17	19½	80½	
D. Fremlin, do	Grogan.....	15	21	9	12	21½	78½	9
A. L. Tuckett, Echo Bay	Imp. Ligowa....	14	23	9	10	20	76	
H. B. Taylor, Bar River	Grogan.....	14	19	9	10	20	72	15, 4
ST. JOSEPH ISLAND AGR. SOCIETY.								
Judge—John Tait, Iron Bridge.								
E. Owen, Richard's Landing ..	Ligowa.....	20	24	10	20	23	97	13, 15
Walter Fyfe, do ..	Abundance.....	18	25	10	20	23	96	
Geo. Haddon, do ..	O. A. C. 72.....	19	24	9	20	23	95	15
Wm. H. Canfield, do ..	Daubeney.....	18	24	10	19	23	94	15
A. W. Stableforth, do ..	O. A. C. 72.....	17	24	9	20	23	93	15
Geo. Furkey, do ..	Sensation.....	17	24	10	18	23	92	15
R. R. Rains, do ..	Banner.....	17	24	10	18	22	91	15

*General appearance—Considering stand of crop, type of plant, vigor and uniformity of growth, method of seeding and absence of lodging.

†Yield and quality of grain—Considering proportion of well-filled heads of plump grain of good quality and uniformity of maturity.

NOTE.—The figures in parenthesis at the top are maximum possible scores.

‡ See key page.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	Yield and quality of grain.	Totals of scores.	Woods in competitors' fields.
		(20)	(25)	(10)	(20)	(25)	(100)	
ALGOMA—Continued.								
ST. JOSEPH'S ISLAND AGR. SOCIETY.—Continued.								
John Brown, Carterton	O. A. C. 72.....	16	24	10	19	21	90	15
A. W. Ross, Richard's Landing..	Reg. Banner.....	15	24	9	19	23	90	15
Wm. See, do	Mammoth Cluster	17	23	10	18	21	89	15, 14
A. Ferguson, do	do	14	24	10	19	21	88	15
Chas. Young, do	Ligowa.....	14	23	10	19	21	87	15
John Cheer, do	Storm King.....	15	23	9	19	21	87	4, 15
Thos. White, do	Abundance.....	15	23	10	18	20	86	15
Geo. Smedley, do	Mammoth Cluster	13	23	10	18	21	85	15
H. Matheson, do	Abundance.....	13	23	10	18	18	82	15
Edgar Rains, Sea Gull	do	14	23	9	18	17	81	15
H. Underhill, Richard's Landing	20th Century.....	12	23	9	20	17	81	15
Bert. Harrison, do	Northland.....	13	20	8	18	14	73	15, 11
THESSALON AGR. SOCIETY.								
<i>Judge—John Tait, Iron Bridge.</i>								
Proud Bros., Bruce Mines, R.R. 1	Granary Filler...	20	25	10	20	23	98	
Thos. Cordukes, Thessalon, R.R. 2	O. A. C. 72.....	20	25	10	20	22	97	
Jno. H. Hopper, do R.R. 1	Granary Filler...	20	24	10	20	22	96	
Nelson King, do R.R. 1	O. A. C. 72.....	20	23	10	20	22	95	15
N. S. Pace, Bruce Mines, R.R. 1	do	19	25	9	20	21	94	
Jas. Mills, do R.R. 1	do	18	25	9	20	21	93	
Alex. Duff, do R.R. 1	do	18	23	9	20	22	92	14, 9, 15
John Shaule, do R.R. 1	Banner.....	17	25	9	19	21	91	
Wm. Weir, Thessalon, R.R. 2	Abundance.....	17	23	9	18	23	90	9, 15
A. I. Hopkins, do R.R. 2	do	15	25	10	20	20	90	
John McDougall, do R.R. 2	Banner.....	17	23	9	19	21	89	15
Isaac Leach, do	Abundance.....	16	23	10	20	20	89	9, 15
Jno. D. McLennan do	do	15	23	10	20	20	88	15
Jos. Broughton, do R.R. 2	Irish White.....	15	24	9	20	15	83	15
T. W. Bailey, do R.R. 2	Abundance.....	16	23	9	18	17	83	15
BRANT.								
PARIS AGR. SOCIETY.								
<i>Judge—Fred. A. Clark, Gormley.</i>								
J. P. Barker, Paris R.R. 2....	O. A. C. 72.....	18	24	9	19½	23	93½	15
S. Carr, do R.R. 2....	do	17	24	9	19½	23½	93	15
D. Patton, do	do	16½	23	8½	19½	22½	90	15, 10
R. & W. Easton, do R.R. 2....	do	15½	24	7	19	19	84½	15
D. A. Holmes, do R.R. 2....	do	14½	21	7	18	20	80½	15, 14
Thos. Carlyle, do R.R. 4....	do	14	21	6	18	17	76	15, 10
A. Deans, do R.R. 2....	do	11½	19½	8	17	17	73	15, 14
John Doyle, Paris Station	do	12	14	8	17	17	68	15, 1, 10
W. McRuer, Ayr, R.R. 3	do	13	8	8	17	18	64	15, 2
Fred. Luck, Paris, R.R. 4	do	10	15	5	18	13	61	15

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	†Weeds in competitors' fields.
BRANT—Continued.		(20)	(25)	(10)	(20)	(25)	(100)	
SIX NATIONS AGR. SOCIETY.								
Judge—Fred. A. Clark,								
Gormley, R.R. 2.								
C. Garlow, Newport	Amer. Banner	13 $\frac{1}{2}$	17 $\frac{1}{2}$	9	16	19 $\frac{1}{2}$	75 $\frac{1}{2}$	15, 10, 4, 14
Andrew Staats, Brantford, R.R. 3	O. A. C. 72	13	18	7	19	17	74	4, 15
Geo. Smith, Burtch	Banner	14 $\frac{1}{2}$	16	7	18	18	73 $\frac{1}{2}$	15, 10
Wm. Smith, Jr., do	do	14	17	7	18	17	73	4, 15, 14
G. Garlow, Middleport	O. A. C. 72	12 $\frac{1}{2}$	15	7	19	18	71 $\frac{1}{2}$	4, 10, 14
Wilfrid Smith, Burtch	Banner	13	15	7	16	18 $\frac{1}{2}$	69 $\frac{1}{2}$	14, 15
W. J. Hill, do	O. A. C. 72	8	17	5	18	15	63	14, 15, 14
David Burning, Ohsweken	Abundance	14 $\frac{1}{2}$	4	6	17	21	62 $\frac{1}{2}$	14, 10, 1
Isaac Hill, do	Banner	8	18	8	17	11	62	14, 15
John Burnham, do	Silver Mine	12 $\frac{1}{2}$	13	6	13	16 $\frac{1}{2}$	61	4, 14, 15
E. Styres, do	Imp. Banner	10 $\frac{1}{2}$	4	8	18	19	59 $\frac{1}{2}$	1, 4, 14, 15
Ed. Garlow, do	Western	13	5	7	16	18	59	1, 4, 14, 15
Jos. Vanevery, Hartford	Amer. Banner	11 $\frac{1}{2}$	12	6	12	16	57 $\frac{1}{2}$	14, 15, 10
H. Jamieson, Ohsweken	Imp. Banner	12	4	5	14	15	50	1, 4, 5, 10, 15, 14
G. S. Johnson, Burtch	O. A. C. 72	9 $\frac{1}{2}$	7	5	14	10	45 $\frac{1}{2}$	10, 15, 14, 4
I. J. Hill, do	do	3	5	6	12	8	34	10, 15, 14
BRUCE.								
ARBAN AND TARA AGR. SOCIETY.								
Judge—J. A. Kernahan,								
Maxwell.								
G. P. Kennedy, Tara	Banner	18	24 $\frac{1}{2}$	10	20	22	94 $\frac{1}{2}$	
Neil McDougald, do	Reg. Banner	19 $\frac{1}{2}$	22	10	18 $\frac{1}{2}$	24	94	
W. J. Proud, do	Irish White	17 $\frac{1}{2}$	24	9	18	22 $\frac{1}{2}$	91	
W. Couper, do	Banner	17 $\frac{1}{2}$	24	8	19	21 $\frac{1}{2}$	90	
J. W. Sinclair, do	Granary Filler	16 $\frac{1}{2}$	22	9	19	20 $\frac{1}{2}$	87	
J. E. Dolphin, do	O. A. C. 72	16	24	9	17	20	86	14
Miss B. A. Thompson, Tara	Banner	16 $\frac{1}{2}$	23	9	18	19	85 $\frac{1}{2}$	15
A. Rowan, do	do	18	10	9	19	21 $\frac{1}{2}$	77 $\frac{1}{2}$	1
W. C. Herron, do	Granary Filler	17	10	9	18	20	74	
Jno. Bailey, do	Banner	12	14	7	14	20	67	1, 15
CARRICK AGR. SOCIETY.								
Judge—Alex. Morrison,								
Creemore.								
A. Schmidt, Mildmay	Abundance	16 $\frac{1}{2}$	24	9	19	22	90 $\frac{1}{2}$	
J. G. Thompson, do	Banner	17 $\frac{1}{2}$	22	9	19	22	89 $\frac{1}{2}$	11
Alex. Fischer, do	do	16 $\frac{1}{2}$	23	9	18 $\frac{1}{2}$	22	89	
M. Weiler, Formosa	O. A. C. 72	16	23	8 $\frac{1}{2}$	19	22	88 $\frac{1}{2}$	14
D. Borho, do R.R. 1	do	16	22	8	18	23	87	
L. Waechter, Mildmay	Banner	15	23	8	18	22	86	
John Lints, do	O. A. C. 72	16	19	8	18	22	83	1, 2

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	Yield and quality of grain.	Totals of scores.	Woods in competitors' fields.
BRUCE— <i>Continued.</i>		(20)	(25)	(10)	(20)	(25)	(100)	
CARRICK AGR. SOCIETY,— <i>Con.</i>								
M. Fischer, Formosa	Golden Flake	16	18	8½	17	22	81½	15, 14
G. B. Armstrong, Teeswater R.R.	Banner	16	16	8	17	22	79	2, 15
Ignatz Grub, Mildmay	O. A. C. 72	14	18	8	17	20½	77½	
H. H. Pletch, Carlsruhe	Man. Star	13	17	7	17	21	75	15, 14
CHESLEY AGR. SOCIETY.								
<i>Judge—J. A. Kernahan, Maxwell.</i>								
Jno. Oswald, Chesley	Siberian	18	24	9½	19½	22½	93½	
Robt. Oswald, do	do	19	24	8	19	23	93	15
W. Thomson, do	Banner	19	22	7	19	24	91	
D. McTavish, do	O. A. C. 72	17½	22	9	18½	22	89	15, 14
Fred. Lowe, do	do	18	20	7	19	20	84	
Jas. Thompson, Dobbinton	do	19½	12	8	19	24	82½	
Frank Legge, Chesley	do	17	21	7	16	19	80	
Jas. McDonald, do	Siberian	16	20	8	15	20	79	
S. K. Ewart, do	O. A. C. 72	15	20	8	15	16½	74½	9, 15
Robt. Milburn, do	Bumper King	16	21	7½	16	13	73½	15
A. Mannerow, do	O. A. C. 72	14	20	6	16	16	72	15
Jno. Ickler, do	Bumper King	16	14	9	10	20½	69½	9, 15
Robt. Miller, do	Granary Filler	13	15	6	16	19	69	15, 12, 14
M. Thompson, do	Siberian	14½	16	5	12	18	65½	15, 14
Jas. Mair, do	Bumper King	12½	20	6	16	13	67½	15
HEPWORTH AGR. SOCIETY.								
<i>Judge—J. A. Mallough, Dungannon.</i>								
W. H. Sharp, Shallow Lake ...	White Wave	18	23	9	18½	22½	91	15
J. E. Miller, Allenford, R.R. 3.	O. A. C. 72	18	22	9	18	23	90	1
Chas. Walker, Hepworth, R.R. 1	do	16½	24	9	18	21	88½	
Phillip Bros., Allenford	do	17	20	9	19	23	88	2, 11
H. Wilson, Hepworth, R.R. 1 ..	do	17½	22	8	18	22	87½	
C. A. Barfoot, Shallow Lake, R.R. 1	Yel. Russian	16	22	8	18	21½	85½	14
Wm. Pringle, do	O. A. C. 72	16	21	9	18	21	85	14
T. E. Evans, Allenford, R.R. 3	Mammoth Cluster	16	19	8	18	20	81	15, 14
D. MacDougall, do R.R. 1	O. A. C. 72	13	20	9	16	19	77	1
S. Hunt, do R.R. 1	Can. King	15	17	7	16	18	73	15
C. A. Millard, Hepworth	O. A. C. 72	14	16	7	15	19	71	15
HURON TP. AGR. SOCIETY.								
<i>Judge—Robert Berry, St. Mary's, R.R. 1.</i>								
Jos. Collins, Ripley	Ligowa	18½	23	9	16½	22½	89½	15
Jas. Steele, do	O. A. C. 72	17	22	7	20	22	88	14, 15
R. H. Reid, Kincardine, R.R. 1	Banner	18	23	7	16	22½	86½	14, 15

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.		Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	Yield and quality of grain.	Totals of scores.	*Weeds in competitors' fields.
BRUCE.— <i>Continued.</i>			(20)	(25)	(10)	(20)	(25)	(100)	
HURON TP. AGR. SOCIETY.— <i>Con.</i>									
W. D. Bradley, Ripley, R.R. 1..	O. A. C. 72.....	19½	24	5½	13	23	85	15	
W. C. Smith, do R.R. 1..	Irish White.....	17	21	7½	15	23	83½	14, 15	
D. Campbell, do R.R. 3..	O. A. C. 72.....	17	22	4	17½	21½	82	14, 15	
Robt. Geddes, do R.R. 1..	do	17½	23	0	18½	22	81	15	
J. H. Reid, do R.R. 1..	do	14½	23	4½	17	19	78	15	
J. L. Bowers, do R.R. 1..	do	17	16	6½	17	20	76½	15	
Jno. MacCharles, Lucknow, R.R. 6	Granary Filler....	14½	19	7	16	19½	76	15, 14	
W. J. Roulston, do R.R. 6	Banner.....	15½	13½	8	16	19½	72½	14, 15, 1	
A. McMurchy, Ripley	Abundance.....	19½	5	7½	18	22	72	15, 1	
D. Finlayson, Ripley, R.R. 1 ..	do	10½	20½	9	13½	18	71½	15, 14	
J. W. Thompson, do R.R. 1	Ligowa.....	17	5	9	15	22½	68½	14, 15	
LUCKNOW AGR. SOCIETY.									
<i>Judge—Robt. Berry, St. Mary's, R.R. 1.</i>									
Alex. McLeod, Lucknow, R.R. 5	W. Danish.....	18	22	8	19	21½	88½		
W. Henderson, do R.R. 3	Lincoln.....	18	22	9	16	22	87	15	
Jno. McLeod, do R.R. 5	W. Danish.....	17	23	5	19	20½	84½	15	
W. A. Wilson, do	20th Century....	16½	22½	8½	17	19½	84	14, 15	
S. Phillips & Sons, do R.R. 2	Abundance.....	17½	15	8½	17½	23	81½	14, 2	
J. C. McKenzie, do R.R. 5	W. Danish.....	15	20	6	19	20	80	15	
Jas. Forster, do R.R. 1	O. A. C. 72.....	16½	22	4	16	20½	79	14, 15	
C. M. Aitchison, do R.R. 2	Abundance.....	16½	21½	8	13	19½	78½	15	
Wm. Taylor & Sons, do R.R. 2	do	15½	20	5	17	20½	78	14, 15	
A. W. Alton, do R.R. 2	do	14½	20	9	16	18	77½	14, 15	
Jas. Baird, do R.R. 3	Granary Filler....	15½	18	8½	15	19½	76½	15	
D. K. Alton, do R.R. 7	Abundance.....	15	20	8½	12	20½	76	14, 15	
McKenzie Bros., do R.R. 5	O. A. C. 72.....	12½	21	7½	18	16½	75½	15	
A. P. Stewart, do	do	13	13	6½	14½	15½	62½	15, 14, 10	
Jno. Webster, do R.R. 2	20th Century.....	18	5	....	15	22½	60½	14, 15, 13, 1	
NORTH BRUCE AND SAUGEEN AGR. SOCIETY.									
<i>Judge—J. M. Fischer, Mildmay.</i>									
W. H. Atkinson, Pt. Elgin, R.R. 3	O. A. C. 72.....	18	20	10	20	23	91		
Alex. Geddes, do R.R. 1	do	20	25	5	15	25	90		
Jas. Scott, do	do	16	20	10	18	21	85		
Alex. Lamont, do R.R. 3	do	18	20	5	20	21	84		
G. M. Jamieson, do R.R. 4	do	20	10	10	20	23	83		
W. H. McClinton, do R.R. 3	do	20	10	8	20	20	78	1	
Jno. Witting, do R.R. 3	do	13	20	8	15	20	76		
F. W. Elliott, do	do	16	20	5	18	15	74		
Jas. B. Muir, do	do	20	10	8	15	19	72	1	
J. T. Wallace, do	do	16	5	10	18	20	69	1	
Jas. Clazie, do R.R. 3	do	20	0	8	18	22	68	1	
John Scott, do	do	13	10	10	15	17	65	1	
Adam Cairns, do	do	12	10	5	15	20	62	1	
J. W. Anderson, do	do	12	15	5	15	15	62		

NOTE.—The figures in parenthesis at the top are maximum possible scores.

2 A.S.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
BRUCE.— <i>Continued.</i>		(20)	(25)	(10)	(20)	(25)	(100)	
PINKERTON AGR. SOCIETY.								
<i>Judge—J. M. Fischer, Mildmay.</i>								
J. A. Garland, Cargill	O. A. C. 72.....	17	25	10	20	25	97	
H. H. Young & Sons, Eden Grove, R.R. 2	Banner.....	18	25	10	15	25	93	
John Mutrie, Pinkerton	do	20	10	10	18	25	83	1
J. Holm, Walkerton	O. A. C. 72.....	20	20	5	15	20	80	
Garland Bros., Pinkerton	do	15	20	8	18	18	79	
D. Pinkerton, do	do	20	10	8	18	20	76	1
A. Alexander, do R.R. 1	Banner.....	20	15	5	15	20	75	
R. Perdue, Eden Grove	Silver Mine.....	14	20	8	15	13	70	
Jno. Desmond, Pinkerton	Banner.....	11	20	5	15	17	68	
Alex. Carr, Glammis	O. A. C. 72.....	13	20	8	15	12	68	
J. Cruikshank & Son, Pinkerton	do	12	20	5	15	13	65	
W. T. Stewart, Glammis	do	13	10	5	15	12	55	1
A. Garland, Cargill	do	10	10	5	10	13	48	2
TEESWATER AGR. SOCIETY.								
<i>Judge—Alex. Morrison, Creemore.</i>								
J. D. Little, Teeswater	O. A. C. 72.....	18	23	9	19	23½	92½	
Alex. McKague, do R.R. 1	do	17½	23	9	19	22½	91	
Robt. Keith, do	do	16½	23	8½	19	23	90	14
D. M. Grant, Formosa	Golden Flake.....	17½	22	9	18	23	89½	15
T. A. Goodfellow, Teeswater ...	Banner.....	17	23	9	18	22	89	
Wm. McKenzie, do	O. A. C. 72.....	16	22½	8½	19	22	88	15
J. S. Armstrong, Formosa	Golden Flake.....	14	23	8	19	23	87	
D. McDonald, Teeswater	O. A. C. 72.....	16	22	8½	18	22	86½	15
D. Keith, do	Siberian.....	16	18	7	17	22	80	1, 14
W. G. Moffat, do	do	13½	19	8	17½	21	79	15
Thos. Rowswell, do	Bumper King.....	14½	18	8	16	21½	78	15
C. J. Thompson, do	O. A. C. 72.....	15½	15	8	17	22	77½	2
A. McKague, do	Bumper King.....	13	20	7	18	18	76	14, 15
WIARTON AGR. SOCIETY.								
<i>Judge—J. A. Mallough, Dunganon.</i>								
Wm. Lembke, Wiarton, R.R. 2	O. A. C. 72.....	18	22½	9	19	22½	91	
E. J. Loney, Oxenden, P.O. ...	Banner.....	16	22	9	18	21	86	
H. F. Loney, Wiarton, R.R. 2	New Century.....	16½	21	9	17	21	84½	1, 15
D. W. Porter, do	O. A. C. 72.....	15	19½	9	18½	21½	83½	14, 15
C. W. Loney, do	Reg. Banner.....	14	22	8	19	20	83	
A. W. North, do	R.R. 2 Swedish Giant...	16	19	9	18	20½	82½	1
A. Lembke, do	R.R. 2 Banner.....	16	20	8	17	21	82	15
A. B. Loney, do	R.R. 2 O. A. C. 72.....	15	21	8	17	20½	81½	15, 14
Jas. Given, do	R.R. 4 Mammoth Cluster	15	20	9	17	20	81	1, 15
G. H. Loney, Oxenden	National.....	15	19	9	17	20	80	15, 1

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.		Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
CARLETON.			(20)	(25)	(10)	(20)	(25)	(100)	
CARLETON COUNTY AGR. SOCIETY.									
<i>Judge—Jas. Middagh, Morrisburg.</i>									
John Laffin, Richmond	.....	O. A. C. 72.....	19	22	9	20	24	94	
Wm. Hemphill, do	.....	Banner.....	17	22	10	20	23 ¹ / ₂	92	
T. H. Seabrook, do	.....	Imp. Banner.....	17	24	9	18	23 ¹ / ₂	91 ¹ / ₂	2
Jas. Seabrook, Stanley Corners	.....	Banner.....	17	20	10	18 ¹ / ₂	24	89 ¹ / ₂	
A. C. Lackey, do	.....	20th Century.....	18	20	10	18	23	89	2
J. B. Wilson, Kars, R.R. 2	.....	Banner.....	15	22	9	19	23	88	
W. J. Findley, Richmond	.....	Imp. Banner.....	17	....	9	18	23	67	
Jas. Stewart, do	.....	Banner.....	16	....	9	17	24	66	
A. H. Foster & Son, do	.....	O. A. C. 72.....	16	....	8	19	22	65	2
Wm. Nixon, do	.....	.....	15	....	9	18	23	65	2
Geo. A. Brown, Stanley Corners, R.R. 1	.....	Banner.....	16	....	9	15	22	63	2
Jno. Crawford, Richmond, R.R. 3	.....	do	14	....	8	18	20	60	2
W. Chas. Moore, do	.....	Imp. Banner.....	4	....	8	17	19	58	2
CARP AGR. SOCIETY.									
<i>Judge—W. Hickson, Bobcaygeon.</i>									
G. H. Caldwell, Carp	.....	Banner.....	17 ¹ / ₂	21	8	19	24	89 ¹ / ₂	2, 15
E. H. Graham & Son, do	.....	O. A. C. 72.....	16 ¹ / ₂	20	8	20	22 ¹ / ₂	87	4
H. K. Hodgins, do	.....	20th Century.....	17	22	7	19	21	86	4
F. S. Caldwell, do	.....	Banner.....	16 ¹ / ₂	19	9	19	22	85 ¹ / ₂	2, 10, 15
W. G. Rivington, do	.....	do	16 ¹ / ₂	18	8	18 ¹ / ₂	23	84	2, 4
W. J. McCord, do	.....	Yellow Dane.....	16 ¹ / ₂	18	9	18	22	83 ¹ / ₂	2, 15, 4
Horace Downey, do R.R. 2	.....	Banner.....	16 ¹ / ₂	17	7	19	22	81 ¹ / ₂	4
J. J. Wilson, do	.....	Sterling.....	15	20	8	17	21	81	2, 4
D. H. Wilson, do	.....	Banner.....	14	18	6	18 ¹ / ₂	22 ¹ / ₂	79	2, 4, 15
Geo. Rivington & Son, do	.....	do	15 ¹ / ₂	16	7	18 ¹ / ₂	22	79	2, 4, 15
El. H. Armstrong, do	.....	do	15 ¹ / ₂	8	7	17	23	70 ¹ / ₂	1, 4, 2
FITZROY AGR. SOCIETY.									
<i>Judge—W. Hickson, Bobcaygeon.</i>									
L. Stewart, Arnprior	.....	O. A. C. 72.....	16 ¹ / ₂	24	9	19	24	92 ¹ / ₂	
A. Miller, Galetta	.....	do	17 ¹ / ₂	23	9	19 ¹ / ₂	23	92	15
F. R. Gourlay, Kinburn	.....	Abundance.....	17	23 ¹ / ₂	8	20	23	91 ¹ / ₂	15
H. E. Miller, Arnprior	.....	O. A. C. 72.....	17	24 ¹ / ₂	8	19	22	90 ¹ / ₂	
D. Croskery, Kinburn	.....	do	16 ¹ / ₂	20	8 ¹ / ₂	19 ¹ / ₂	23	87 ¹ / ₂	10, 4
J. E. Armstrong, do	.....	Banner.....	15 ¹ / ₂	23 ¹ / ₂	8	19	21	87	
P. M. Herrick, Galetta	.....	do	17 ¹ / ₂	22	8	16	23	86 ¹ / ₂	4
Hartley Miller, do	.....	do	17	20	8	19	22	86	10, 4
A. J. Halpenny, do	.....	do	15	20	8 ¹ / ₂	19	23	85 ¹ / ₂	15, 4
E. O. Wilson, Kinburn, R.R. 1	.....	Western.....	16	20	7	19	22	84	4, 15
J. L. Hunt, Galetta	.....	Swedish Special..	14	21 ¹ / ₂	9	18	18 ¹ / ₂	81	10, 15
A. M. Tait, do	.....	Banner.....	13 ¹ / ₂	21	6 ¹ / ₂	20	19 ¹ / ₂	80 ¹ / ₂	4, 10
J. W. Smith, Kinburn	.....	Siberian.....	15 ¹ / ₂	16	9	19	20 ¹ / ₂	80	2, 4

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.		Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	†Weeds in competitors' fields.
DUFFERIN.			(20)	(25)	(10)	(20)	(25)	(100)	
DUFFERIN AGR. SOCIETY.									
Judge—E. I. McLoughry,									
Markdale, R.R. 4.									
M. Armstrong, Mono Mills, R.R. 1	O. A. C. 72.....	19.7	20	9	18½	23.9	91.1	15, 3, 4	
J. H. Jackson, Orangeville	Reg. Banner.....	19	21	9	18	22	89	15, 14	
P. Reid, Amaranth Station	O. A. C. 72.....	18	21	9	18	21½	87½		
J. J. Leighton, Orangeville, R.R. 1	do	17	21	8	18	21½	85½	15	
P. B. Norris, do R.R. 2	do	17½	20	9	17	21	84½	13, 15, 4	
W. H. Gillespie, do R.R. 3	Irish White.....	17	20	8	18	21	84	11, 15	
W. N. Baker, do R.R. 1	20th Century.....	17	20	8	17½	21	83½	15, 13	
Robt. Little, Camilla	O. A. C. 72.....	17	15	8	18	21½	79½	2, 5, 15	
I. J. Ferns, Amaranth Station, R.R. 1	do	18½	9	8	18½	22.9	76.9	2	
M. McCormick, Amaranth Station	do	18	8	9	18½	23	76½	2, 15	
Wm. Morrow, Orangeville, R.R. 3	Granary Filler....	16½	10	9	18	21	74½	2, 15, 17	
N. Black, do R.R. 2	Sterling.....	17½	10	9½	17	20½	74½	15	
Jos. Carney, Amaranth Station.	Prince Royal.....	17	10	9½	16	21½	74	1, 15	
Geo. Lightle, do ..	Early Cluster....	19½	8	8	16	21½	73	2, 15	
J. D. Hoare, do ..	Sterling.....	17	9	8	18	21	73	2, 15, 4	
F. Leader, Orangeville, R.R. 1..	.....	17	7	9½	18	21½	73	2, 10, 11, 15, 5	
Robt. Reid, Camilla, R.R. 4	Sheffield Standard	16	10	8	14	23	71	2, 15	
W. O. Nodwell, Waldemar, R.R. 2	Ligowa.....	16	8	8	19	18	69	2, 15	
J. H. Anderson, Orangeville	Reg. Banner.....	18	8	8	15	19½	68½	2, 15	
Walter Smith, Amaranth Station	Sterling.....	15½	3	9	17	23½	68	2, 7, 15	
Jno. Turner, Camilla	White Wave.....	15	4	7	17	23½	66½	1, 15	
S. C. W. Hughson, Orangeville, R.R. 2	Early Cluster....	8	10	9	19	20	66	15, 14, 2	
W. H. Hunter, Orangeville	\$1,000.....	15	9	7	16	19	66	2, 10	
Jno. Cornelius, do	Prince Royal.....	16	10	9	12	18	65	2, 1, 10	
W. A. Hoare, Amaranth Station	Sterling.....	15	8	6	16	18½	63½	2	
DUFFERIN CENTRAL AGR. SOCIETY.									
Judge—E. I. McLoughry,									
Markdale, R.R. 4.									
Arch. Greer, Perm	W. Derby.....	19.3	21½	9.8	19.4	23	93	2, 15	
J. S. Richardson, Shelburne, R. R. 1	Yellow Russian...	18	22	8	19½	22½	90	4, 15	
Geo. E. Foster, Honeywood	O. A. C. 72.....	18	20	9	19½	22	88½	11, 15	
J. H. McKee, Whitfield.....	do	16½	23½	7½	18½	21½	87½		
Rice Hill, Shelburne	do	16½	21	7½	18	22	85	11, 15	
R. M. Mortimer, Honeywood ...	do	17	22	7	18	20	84	15	
T. A. Middleton, Shelburne, R. R. 3	do	18	13	9½	19½	22	82	2, 15	
Geo. Best, do R.R. 2	Lincoln.....	15½	20	8	14	20	77½	15	
Emory Doan, Honeywood	O. A. C. 72.....	16½	11	8	17½	21	74	11, 15	
W. D. Dynes, Shelburne, R.R. 3	W. Cluster.....	17	10	8	17	21	73	2	
EAST LUTHER AGR. SOCIETY.									
Judge—R. H. Crosby, Markham.									
Robt. Fuller, Gr'd Valley, R.R. 2	Abundance.....	18½	22	8½	19	22	90	14, 15	
Wm. Curtiss, Belwood, R.R. 3..	O. A. C. 72.....	18½	17	9	19	23½	87	2	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	*Weeds in competitors' fields.
		(20)	(25)	(10)	(20)	(25)	(100)	
DUFFERIN.— <i>Continued.</i>								
EAST LUTHER AGR. SOCIETY.								
— <i>Continued.</i>								
W. E. Turner, Gr'd Valley, R.R. 3	O. A. C. 72.....	14	20	9	19	21	83	2, 15
Henry Berry, do R.R. 3	do	15	20	8	17	19	79	14, 15
N. Eastwood, do	do	17½	10	8	19	23	77½	2, 15
J. A. Campbell, do R.R. 3	Abundance.....	15	17	9	16	20	77	2, 15
Geo. Gier, Waldemar	O. A. C. 72.....	18	10	8	17	22½	75½	2, 15
W. Richardson, Gd. Valley, R.R. 3	do	18½	5	8	18	23½	73	2, 15
John Dickson, Monticello	do	16½	10	8	19	19	72½	2
Robt. Taylor, Grand Valley.....	Big 4.....	18	5	8	18	23	72	2, 15, 4
R. T. Forgrave, do	O. A. C. 72.....	18½	5	7	19	22½	72	2, 10, 15
Jas. Crane, do	Golden Flake.....	17½	5	8	18	22½	71	2, 15
W. A. Wansbrough, do	O. A. C. 72.....	17	5	9	18	21½	70½	2, 15
Wm. Park, Belwood, R.R. 3 ..	do	18	....	9	19	23½	69½	2, 4, 15
Jno. McGill, Gd. Valley, R.R. 2	do	18	....	9	19	23½	69½	2, 10, 15
A. Richardson, do R.R. 3	do	17½	....	9½	18	22½	67½	2, 4, 15
Wm. Willmott, do R.R. 3	do	17	....	9½	19	21½	67	2
Jno. Hayes, Colbeck, R.R. 1 ..	Banner.....	17½	....	9	19	20½	66	2, 15
E. Newsom, Gd. Valley, R.R. 2	O. A. C. 72.....	16½	....	8	19	19½	63	2, 15
A. J. Blair, do R.R. 3	do	16½	....	9	16	21	62½	2, 15
R. W. King, do	Prince Royal.....	17½	....	8	10	22½	58	2, 15
Jno. Bryan, Laurel	Irish White.....	17	....	9	10	21½	57½	2
Roy Smith, Amaranth Station, R.R. 1	Prince Royal.....	16½	....	9	10	20½	56	1, 4, 15
DUNDAS.								
MOUNTAIN AGR. SOCIETY.								
<i>Judge—Cecil Schuyler, Brockville.</i>								
Wm. Timmons, Inkerman	White Wave.....	17½	23	7½	18½	23½	90	
A. Collison, S. Mountain	D. Islander.....	17	21	8½	18½	23½	88½	5, 10, 2
W. Forrester, do	do	17½	21	8	18½	23½	88½	2, 15
Herb. Walter, Winchester	do	17	20	8½	19½	22	86½	5, 15
Geo. Timmons, Inkerman	White Wave.....	16½	20	7½	18½	22½	85½	2, 5
R. K. Graham, S. Mountain	O. A. C. 72.....	14½	23½	9½	18	19½	84½	2, 5
Jas. Higginson, Inkerman	White Wave.....	15½	20½	8½	18½	21½	84½	2, 5
S. Thorpe, S. Mountain, R.R. 1	Mandscheuri.....	16	20	8	17	20½	81½	10, 14, 5
Robt. Simzer, Winchester	White Wave.....	15½	17	7½	19	21½	80½	5, 15, 2, 10
WINCHESTER AGR. SOCIETY.								
<i>Judge—Cecil Schuyler, Brockville.</i>								
D. Christie & Sons, Winchester	O. A. C. 72.....	16½	20	8	19½	22½	87	2
R. J. Anderson, do	Banner.....	16½	23	7	18	22	86½	
W. Moffatt, do R.R. 2	O. A. C. 72.....	14½	23	8	19	20½	85½	2, 15
Thos. Irving, do	Banner.....	15½	22	8	19	20½	84½	2
Jno. Jamieson, do R.R. 4	E. Abundance....	16½	21	8	17	22	84½	14, 10
Wm. Hamilton, Chesterville ..	O. A. C. 72.....	14½	22	5	19	20½	81	15

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	Yield and quality of grain.	Totals of scores.	Woods in competitors' fields.
DUNDAS.— <i>Continued.</i>		(20)	(25)	(10)	(20)	(25)	(100)	
WINCHESTER AGR. SOCIETY.— <i>Con.</i>								
S. R. Fulton, Chesterville	Banner.....	12	19	7	16	21	75	15, 2
E. R. Steele, Winchester	Rennie's Early Yielder.....	15 $\frac{1}{2}$	14	7	19	19	74 $\frac{1}{2}$	2, 15, 10
Jno. Moffatt, do	Banner.....	13 $\frac{1}{2}$	20 $\frac{1}{4}$	6	19	15	73 $\frac{3}{4}$	15
Thos. Edgerton, do R.R. 2	do	12 $\frac{1}{2}$	22	7	19	13	73 $\frac{1}{2}$	
R. Justus, do	Rennie's Early Yielder.....	15	17	6	19	16	73	15
Herb. Robinson, do R.R. 2	do	12 $\frac{1}{2}$	18	7	16	12	65 $\frac{1}{2}$	2
H. Stoodley, do	Abundance.....	14	16	7	15	12 $\frac{1}{4}$	64 $\frac{1}{4}$	
Wm. B. Hamilton, Chesterville.	O. A. C. 72.....	11 $\frac{1}{2}$	12	8	18	13	62 $\frac{1}{2}$	2, 15
DURHAM.								
CARTWRIGHT AGR. SOCIETY.								
Judge—A. Elliott, Galt.								
J. G. Marlow, Burketon Station	O. A. C. 72.....	18	23	8	18	21 $\frac{1}{2}$	88 $\frac{1}{2}$	
F. W. Taylor, Blackstock	Prince Royal.....	16 $\frac{1}{2}$	23	8 $\frac{1}{2}$	19	18 $\frac{3}{4}$	85 $\frac{3}{4}$	
A. W. Wright, Nestleton Station	O. A. C. 72.....	17 $\frac{1}{2}$	21	7	19	20 $\frac{1}{2}$	85	
H. Mountjoy, Burketon	do	14 $\frac{1}{2}$	23	7	19	20	83 $\frac{1}{2}$	
Jno. Nesbitt, Nestleton Station	do	15 $\frac{1}{2}$	22	7	19 $\frac{1}{4}$	19	83	
Jno. Mountjoy, do	do	14	21	8	18 $\frac{1}{2}$	20 $\frac{1}{2}$	82	
L. E. Mountjoy, Burketon Sta	Irish White.....	16	22	7	19	15 $\frac{1}{2}$	79 $\frac{1}{2}$	
N. H. Marlow, do	O. A. C. 72.....	15	22	7	19	15 $\frac{1}{2}$	78 $\frac{1}{2}$	
Alex. Johnson, do	do	16	13	7	19	20 $\frac{1}{2}$	75 $\frac{1}{2}$	2
W. C. Ferguson, Blackstock ..	Yellow Russian... ..	15	8	9	18	20 $\frac{1}{2}$	70 $\frac{1}{2}$	1
CLARKE TP. AGR. SOCIETY.								
Judge—J. W. Hess, Trenton, R.R. 2.								
C. A. Chapman, Orono	O. A. C. 72.....	16	22	8	19	23 $\frac{1}{2}$	88 $\frac{1}{2}$	
C. L. Powers, do R.R. 1	Storm King.....	16	22	9	18	22	87	15
D. J. Gibson, Bowmanville, R.R. 4	O. A. C. 72.....	17	20	8	19	22	86	
J. T. Chapman, Orono, R.R. 1	do	17	22	7	18 $\frac{1}{2}$	21	85 $\frac{1}{2}$	
A. A. Powers, do	do	17	20	8	18	21	84	15
A. J. Tamblin, do	do	15	20	8	18	22	83	15
V. Stewart, do R.R. 1	do	16	20	8	17	19	80	15
F. W. L. Tamblin, do	do	15	18	8	17	21	79	2, 15
F. W. Bowen, Newcastle	Granary Filler... ..	15	15	8	18	23	79	2, 15
W. F. Rickard, do	White Wave.....	14	17	8	17	22	78	2, 15
MILLBROOK AGR. SOCIETY.								
Judge—A. Forster, Markham								
G. Armstrong, Millbrook, R.R. 3	Banner.....	19	22	9 $\frac{1}{2}$	19 $\frac{1}{2}$	23	93	1, 10, 15
W. Sharpe, Ida	do	17	24 $\frac{1}{2}$	9	19	22 $\frac{1}{2}$	92	15
Robt. McCamus, do	O. A. C. 72.....	18 $\frac{1}{2}$	23	9	18	22 $\frac{1}{2}$	91	15
F. W. McCamus, Millbrook, R. R. 3	do	17 $\frac{1}{2}$	21	9 $\frac{1}{2}$	19 $\frac{1}{2}$	22	89 $\frac{1}{2}$	10, 15
T. A. Kelly, Frazerville, R.R. 1	do	18 $\frac{1}{2}$	17 $\frac{1}{2}$	9 $\frac{1}{2}$	19 $\frac{1}{2}$	23	88	1, 15

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.			Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	Yield and quality of grain.	Totals of scores.	*Weeds in competitors' fields.
DURIHAM.—Continued.				(20)	(25)	(10)	(20)	(25)	(100)	
MILLBROOK AGR. SOCIETY.— <i>Con.</i>										
W. Brown,	Millbrook,	R.R. 3	Dew Drop.....	15½	20	10	19	21	85½	10, 15
Geo. Bonar,	do	R.R. 1	W. Prolific.....	18½	12	10	19	23	82½	1, 10, 15
J. L. McCamus,	do	R.R. 1	Banner.....	15	18	9	19	21	82	10, 14, 15
R. I. Fallis,	do	R.R. 3	O. A. C. 72.....	15½	15	7½	18½	20½	77	2, 15
Geo. Berry,	do	R.R. 1	do	16½	9	9	19½	22	76	2, 10, 15
A. J. Henderson,	do	R.R. 3	W. Giant.....	13	20	6½	18	18	75½	15
J. W. Hamilton,	do	R.R. 3	Amer. Banner....	13	20	7	16	19	75	15
John Tate,	do	R.R. 1	W. Prolific.....	15½	9	9½	19	21	74	2, 1, 10, 15
R. J. McKnight,	Millbrook	....	Banner.....	15	10	8	16½	20½	70	2, 10, 14, 15
Hy. Fallis,	do	R.R. 3	Sterling.....	14	9½	7	16	19½	66	1
WEST DURIHAM AGR. SOCIETY.										
Judge—J. W. Hess, Trenton, R.R. 2.										
L. T. Pascoe,	Hampton,	R.R. 1	O. A. C. 72.....	16	20	9	18	21	84	
A. L. Pascoe,	do	R.R. 1	do	16	20	8	18½	21	83½	4, 15
John Baker,	do	R.R. 1	do	14	19	9	18	23	83	2, 15
S. E. Werry,	do	R.R. 1	do	11	22	8	19½	22	82½	15, 12
W. J. Bragg,	Bowmanville,	R.R. 4	do	15	20	8	18	21	82	2, 15
Thos. Jackson,	do	R.R. 4	do	15	19	8	17	22	81	4, 15
H. Greenlees,	do	R.R. 4	do	12½	20	8	18	22	80½	
W. E. Jewell,	do	R.R. 4	do	12	20	8	18	22	80	15
A. W. Annis,	Tyrone	.....	do	16	17	7	17½	21	78½	2, 15
T. Baker & Son,	Hampton,	R.R. 1	do	16	18	7	17	20	78	
J. F. Osborne,	Newcastle,	R.R. 2	do	13	19	7	15	21	75	12, 15
ELGIN.										
ALDBOROUGH AGR. SOCIETY.										
Judge—Jno. Hamilton, Wallaceburg, R.R. 5.										
J. A. King,	Wardsville	.....	O. A. C. 72.....	16	22½	9	17	24	88½	14
Arch. Leitch, Jr.,	do	R.R. 1	Amer. Wonder....	16½	22½	9	15½	24½	88	15
C. Campbell,	do	.....	O. A. C. 72.....	16½	22	9	16	24	87½	
Jas. Downie,	Rodney, R.R. 1	....	do	16½	20	9	17½	23½	86½	
J. F. McGregor,	Wardsville	...	do	17½	22	8½	15½	22½	86	14, 15
W. Wright,	do	R.R. 1	do	17	22	9	15	22½	85½	14
Thos. Heywood,	do	.....	Amer. Wonder....	16½	21	9	15½	23	85	15
R. A. Kerr,	Rodney, R.R. 3	....	O. A. C. 72.....	16	23	8½	16	21	84½	15
J. McLean & Son,	do	R.R. 2	do	15½	23	8½	16	21	84	15
D. A. Purcell,	Wardsville, R.R. 1	....	Banner.....	15½	22	9	15½	21	83	
J. Hessenauer,	Rodney, R.R. 3	....	do	16	21	8½	15	22	82½	15
W. W. Havens,	do	.....	Banner.....	16½	21	8½	13½	22½	82	15
Arch. McColl,	do	R.R. 2	O. A. C. 72.....	15½	20	7½	16½	20½	80	15, 14
Jas. Kelly,	do	R.R. 2	do	14½	21	8	15½	20½	79½	15, 14
A. Wehlann,	do	R.R. 2	Storm King.....	17½	21	8	12	21	79½	15, 14
D. Carmichael, Jr.,	W. Lorne	....	O. A. C. 72.....	16	15	8	14½	19	72½	15
J. A. Kelly,	Rodney	.....	do	14	15½	8	13	20½	71	15, 14

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Gen.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	Yield and quality of grain.	Totals of scores.	Woods in competitors' fields.
ELGIN.— <i>Continued.</i>		(20)	(25)	(10)	(20)	(25)	(100)	
STRAFFORDVILLE AGR. SOCIETY.								
<i>Judge—Jno. Hamilton, Wallaceburg, R.R. 5.</i>								
Leslie High, Straffordville	O. A. C. 72.....	17	24	9	18½	21½	90	15
Hy. Yeandle, do	Siberian.....	17	22	9	16	23½	87½	15
G. M. Mitchell, do R.R. 1	O. A. C. 72.....	17	22½	9	15	23½	87	15
C. Godby, Bayham	do	15½	22	8	17	23½	86	15
Elgin Hatch, Eden, R.R. 1....	Banner.....	17	22	9	14½	21½	84	15
Jno. L. Howey, Straffordville	do	17	20	7	15½	22	81½	15
F. S. Procunier, do	O. A. C. 72.....	15	15	9	17	23	79	15
P. B. Haines, Aylmer, R.R. 1..	do	15	20	8½	13	21½	78	15, 14
G. A. Procunier, Corinth, R.R. 1	do	13½	20	8½	12	23½	77½	14
N. H. McConkey, Straffordville	do	13½	17	8	12	20	70½	
WEST ELGIN AGR. SOCIETY.								
<i>Judge—R. H. Harding, Thorndale.</i>								
S. M. Pearce, Fingal	O. A. C. 72.....	19	23	6	19	23½	90½	
Jonah Page, Tyrconnell	do	15	22	7	20	22	86	2
Jas. Sifton, Wallacetown	do	15½	20	8	19	22	84½	
Jas. Page, Tyrconnell	do	15	20	8	19	21	83	15
S. Pearce, Wallacetown	do	16	14	8	18½	23	79½	14, 15
H. Coates, Dutton	do	16	20	6	17½	19½	79	15
B. E. Sifton, Wallacetown	O. A. C. 72.....	13	20	7	18½	20	78½	15
Jno. McPherson, Dutton	do	13½	22	6	16½	20	78	14
Jas. Duncanson, do	20th Century....	13	22	7	16	19½	77½	
Jno. Pearce, Wallacetown	O. A. C. 72.....	13	15	8	18	23	77	14, 15
R. T. Garbutt, do	do	11½	20	6	16	20	73½	14
Herb. Whight, Dutton	do	13½	19	6	12	22	72½	15
P. McPherson, do	do	15	10	6	19	22½	72½	4, 14, 2
W. S. Pearce, Wallacetown	Imp. Banner.....	13	10	8½	19	21	71½	10, 14
A. Lunn, Fingal	do	14	12	7	16	21½	70½	15
ESSEX. ,								
AMHERSTBURG, ANDERDON AND MALDEN AGR. SOCIETY.								
<i>Judge—Lee Cascadden, Aylmer West.</i>								
Jas. Martin, Amherstburg, R.R.2	O. A. C. 72.....	19	24	10	19	23½	95½	4
Frank McGee, N. Malden	do	18	24	10	19	23	94	15
D. E. Bondy, do	do	19	25	8	19	22½	93½	
F. Pigeon, do	do	17	24	8	19	23	91	
H. R. Harris, Amherstburg R.R.2	do	18	23	10	19	20½	90½	4
R. Piper, do	do	16	24	9	18	23	90	
Fred. Pettypiece, Auld	do	18	23	8	18	22½	89½	
E. A. Deneau, N. Malden	Banner.....	17	21	10	18	23	89	15

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
ESSEX.— <i>Continued.</i>		(20)	(25)	(10)	(20)	(25)	(100)	
AMHERSTBURG, ANDERDON AND MALDEN AGR. SOCIETY.— <i>Con.</i>								
A. P. Meloche, Amherstburg ...	M. Lifter.....	17	23	8	18 $\frac{3}{4}$	22	88 $\frac{3}{4}$	4
G. W. Sellers, do R.R. 1	Banner.....	20	20	9	18	21 $\frac{1}{2}$	88 $\frac{1}{2}$	
T. E. Mahon, Auld	do	17	22	10	17	22	88	4
F. G. Hutchins, N. Malden	O. A. C. 72.....	17	22 $\frac{1}{2}$	7 $\frac{1}{2}$	18	22 $\frac{1}{2}$	87 $\frac{1}{2}$	
A. Sinasac, Jr., Auld	do	15	23	8	18	22 $\frac{1}{2}$	86 $\frac{1}{2}$	
A. E. Wood, Amherstburg, R.R. 2	Banner.....	15 $\frac{1}{2}$	20	8	19	22	84 $\frac{1}{2}$	14, 15
E. Toffelmire, do	do	15	25	7	17	20	84	
G. Deneau, do	O. A. C. 72.....	13	22	8	18	20 $\frac{1}{2}$	81 $\frac{1}{2}$	15
R. Langlois, do	do	10	23	8	17	20	78	4
W. C. Anderson, do R.R. 1	do	11	20	9	17	18	75	15
SOUTH WOODSLEE AGR. SOCIETY.								
<i>Judge—Lee Cascadden, Aylmer West.</i>								
W. H. Knister, Ruscomb	O. A. C. 72.....	19	24	10	19	23	95	
Edwin Plant, S. Woodslee ..	do	18	24	10	20	22 $\frac{1}{2}$	94 $\frac{1}{2}$	
J. H. Hedrick, do ..	do	18	25	10	19	22	94	
B. R. Cohoe, do ..	do	17 $\frac{1}{2}$	24	9	19	23	92 $\frac{1}{2}$	
W. Hedrick, do ..	do	17 $\frac{1}{2}$	23	9	18	23	90 $\frac{1}{2}$	10
E. J. Mullins, do ..	do	18	24	8	19	21	90	
Fred. Dornton, do ..	do	18	20	8	19	22	77	15
W. S. Mills, do ..	O. A. C. 72.....	13	24	9	18	21	85	
Gordon Smith, do ..	do	17	21	7	18	21 $\frac{1}{2}$	84 $\frac{1}{2}$	15
Jno. Wallace, Ruscomb	do	15	22	8	18	21	84	
F. B. Fuerth, S. Woodslee	Banner.....	16	20	7	18	22	83	14, 15
FRONTENAC.								
KINGSTON IND. AGR. SOCIETY.								
<i>Judge—S. H. Treverton, Belleville.</i>								
Jas. Henderson, Kingston, R.R. 1	O. A. C. 72.....	18 $\frac{1}{2}$	22	9	18	22 $\frac{1}{2}$	90	10
J. B. Baxter, do R.R. 1	do	18	22	9	18	22 $\frac{1}{2}$	89 $\frac{1}{2}$	10
W. H. McAdoo, Kingston Mills, R.R. 1	do	17 $\frac{1}{2}$	20	9	18	22	86 $\frac{1}{2}$	4
Arthur Day, Portsmouth, R.R. 1	do	18	20	9	17	22	86	
Jos. Wood, Barriefield	do	16	21	9	18	21	85	2
J. S. Sibbit, Kingston, R.R. 1..	do	17 $\frac{1}{2}$	20	8	18	21	84 $\frac{1}{2}$	2
J. L. F. Sproule, Westbrook ...	do	16	20	8	17	22 $\frac{1}{2}$	83 $\frac{1}{2}$	10, 5
G. A. Seale, Kingston, R.R. 1	do	16	20	9	17	21	83	4, 2
W. A. Finnigan, do R.R. 1	Washington.....	17 $\frac{1}{2}$	18	9	16	22	82 $\frac{1}{2}$	4
W. J. Smythe, Cataraqui	Banner.....	16	21	8	17	20	82	4, 10
G. B. Finnigan, Barriefield	Daubeney.....	15	20	8	18	21	82	4
D. C. Rogers, Kingston, R.R. 1	Yellow Russian... 14	18	9	17	22	80	4, 10	
J. O. Finnigan, Barriefield	Mammoth Cluster	14	18	9	18	20	79	1, 5
W. L. Stormes, Harrowsmith ..	Early Yelder.....	16	18	8	16	20	78	5

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	Yield and quality of grain.	Totals of scores.	Woods in competitors' fields.
FRONTENAC.— <i>Continued.</i>		(20)	(25)	(10)	(20)	(25)	(100)	
WOLFE ISLAND AGR. SOCIETY.								
Judge—S. H. Treverton, Belleville.								
Wm. Allune, Wolfe Island, R.R. 7	O. A. C. 72.....	17½	23	9	18	22	89½	
G. W. Keyes, do R.R. 2	Banner.....	17½	22	9	18	22½	89	
C. Russell, do R.R. 7	do	17	22	9	18	22½	88½	
S. Woodman, do R.R. 1	.....	17	22	9	18	22	88	
John Hall, do R.R. 2	.....	17½	20	9	18	2½	87	
A. Hough, do R.R. 4	Banner.....	17	22	9	18	20	86	
J. W. Keyes, do R.R. 2	do	17	20	9	17	22	85	
Thos. Dee, do	do	15	20	9	18	21	83½	
Geo. Friend, do R.R. 7	do	17½	21	8	17	20	82½	10
H. Horn, do R.R. 1	do	16	21	9	17	20	83	
W. H. Woodman, do R.R. 1	.....	16	19	8	18	21½	82½	
J. W. Niles, do R.R. 1	.....	16	20	9	17	20½	82½	4, 10
Robt. Michea, do R.R. 1	.....	15	20	8	17	22	82	4, 10
David Watts, do R.R. 4	Banner.....	17	20	8	17	20	82	
Ed. Payne, do .....	.....	15	20	8	16	21	80	
H. Tarrant, do	Banner.....	15	20	8	17	20	80	
GLENGARRY.								
ST. LAWRENCE VALLEY AGR. SOCIETY.								
Judge—Jas. Middagh, Morrisburg.								
Thos. Craig, Lancaster	Banner.....	19	....	10	20	25	74	2
Thos. Munro, do	do	19½	....	10	20	24	73½	2
A. A. McLennan, do	do	19	....	9	20	25	73	2
Wm. Mitchell, Bainsville	Siberian.....	20	....	9	19	24	72	2
J. P. Snider, do	E. Angus.....	19	....	10	20	22½	71½	2
Wm. Condie, do	O. A. C. 72.....	18	....	9	20	24	71	
J. W. Clark, Lancaster	Banner.....	15	....	17	18	20	70	
Jas. McNaughton, Williamstown ..	Scottish Chief....	18	....	10	17	24	69	2
M. McLennan, Lancaster, R.R. 1	Banner.....	17	....	9	19	23	68	2
Wm. Wightman, do .....	.....	16	....	9	20	22	67	2
F. Robertson, Williamstown ..	Storm King.....	18	....	7	20	21	66	2, 10
J. J. Dingwall, do ..	.....	18	....	9	15	24	66	2
P. S. Snider, Bainsville	E. Angus.....	16	....	8	19	22	65	2
F. W. Fraser, Lancaster	Banner.....	16	....	8	18	21	63	
D. M. Robertson, Williamstown ..	Storm King.....	15	....	7	19	21	62	2
GRENVILLE.								
KEMPTVILLE AGR. SOCIETY.								
Judge—W. J. Barber, Rossmore.								
J. H. Sloan, Kemptville	Banner.....	17	21	8½	18	19½	84	15
W. H. Latourell, Mountain, R. R. 3	do	17½	13	9	18½	21	79	2
W. A. Davidson, Kemptville, R. R. 4	O. A. C. 72.....	16	18	8½	17½	18½	78½	2, 15, 10

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	†Weeds in competitors' fields.
GRENVILLE.— <i>Continued.</i>		(20)	(25)	(10)	(20)	(25)	(100)	
KEMPTVILLE AGR. SOCIETY.— <i>Con.</i>								
J. C. Donnelly, Kemptville, R.R. 4	O. A. C. 72.....	16½	10	8½	19	21	75	5, 2, 15
G. E. Wiggins, do R.R. 4	do	15	16	8½	15	20	74½	4, 2, 13
M. A. Powell, do R.R. 4	do	15	10	8	18½	20	71½	2, 15, 4
A. H. Buchanan, do	do	13½	12½	7	18	18½	69½	5, 15
W. B. Percival, Burritt's Rapids	Banner.....	15	14	8	12	20	69	2, 15, 10
W. E. James, Kemptville, R.R. 2	do	15	8	8	18	18	67	5, 2, 15, 11
B. Lewis, do R.R. 4	do	11½	6	7½	18½	17½	61	10, 4
C. D. Beckett, do R.R. 4	Imp. Banner....	15	4	5	19	17	60	2, 4
E. B. Brach, Oxford Mills	Banner.....	14½	....	8	18	19	59½	2, 15 14
H. C. Beckett, do	O. A. C. 72.....	10½	18	3	10	14	55½	15
SPENCERVILLE AGR. SOCIETY.								
<i>Judge—W. J. Barber, Rossmore.</i>								
R. J. Kelso, Spencerville, R.R. 2	O. A. C. 72.....	15½	23	8½	18½	20	85½	
Jas. Gray, do R.R. 3	Banner.....	17	23	2	19	18	79	
H. W. Kelso, do	O. A. C. 72.....	13½	17	8½	19	19½	77½	10, 14, 15
R. Wallace, do R.R. 4	20th Century....	16	18	9	13	20	76	2, 14, 15
C. L. Ferguson, do R.R. 3	Banner.....	10½	18	8½	16	18	71	2, 10, 15
Geo. Dukelow, do R.R. 2	do	14	13	5½	17	18½	68	2, 15, 14
H. Burnie, do R.R. 3	do	13	13	7½	17	17	67½	2, 15
Geo. Byers, Cardinal, R.R. 1...	Banner.....	17	6	8½	15	20½	67	5, 2, 14, 15
A. A. Goodin, Spencerville, R.R. 2	Canadian.....	15½	....	6½	19	19½	60½	2, 5, 14, 15
E. L. Pitt, do R.R. 4	O. A. C. 72.....	9	15	6	17	13	60	15, 14, 10
Gillespie Bros., do R.R. 1	Banner.....	17	....	4	18	18½	57½	5, 2, 15
C. Froats, do R.R. 2	O. A. C. 72.....	13	7	4	19	14	57	2, 10, 5
GREY.								
DESBORO AGR. SOCIETY.								
<i>Judge—Andrew Schmidt, Mildmay.</i>								
J. McKenzie, Chatsworth, R.R. 3	O. A. C. 72.....	18½	23½	....	19	24½	85½	14, 15
Wm. Halliday, do R.R. 3	do	18½	21	6	16	23½	85	14, 15
W. J. Bryans, Chatsworth, R.R. 3	do	17½	14	8½	18	22	80	1, 15
Jos. Bryans, Desboro	Silver Sheaf....	18½	10	7	15	23	73½	1, 14, 15
J. McDonald, Chatsworth, R.R. 3	O. A. C. 72.....	17½	5	8	18½	23	72	1, 14, 15
Louis Mannerow, Desboro, R.R. 1	do	15½	8	9	17	19½	69	15, 14, 2, 1
W. Proud, do	W. King.....	18½	....	10	16	24	68½	1, 14, 15
N. McElheron, Chatsworth, R.R. 3	O. A. C. 72.....	16½	5	7½	18	21	68	15, 14, 1
Jas. Duff, do R.R. 3	do	17	4	6	19½	21	67½	1, 14, 15
F. Walker, do R.R. 3	do	13½	12½	3	17	21	67	15
C. Engel, do R.R. 3	do	16½	....	9	17	22	64½	1, 15
C. Magee, Desboro	do	18½	....	10	....	23½	52	1, 14
EGREMONT AGR. SOCIETY.								
<i>Judge—R. E. Mortimer, Honeywood.</i>								
Robt. Aitkin, Holstein, R.R. 2	Banner.....	15½	20	8	12	16½	72	15
H. Reid, do R.R. 2	Can. Pride.....	14	20	8	12	17	71	15

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.			Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	Yield and quality of grain.	Totals of scores.	Wreeds in competitors' fields.
				(20)	(25)	(10)	(20)	(25)	(100)	
GREY.— <i>Continued.</i>										
EGREMONT AGR. SOCIETY.— <i>Con.</i>										
Wm. Hunter, Varney			O. A. C. 72	13	21	6	16½	14	70½	15
H. A. Cowan, Mt. Forest, R.R. 3			Lincoln	16½	12½	7	15	18½	69½	1
Walt. Ferguson, Holstein, R.R. 2				14	17½	7	17	13½	69	15
Jos. Dowling, Mt. Forest, R.R. 3			Banner	15	17	6	14	15½	67½	14, 1
D. McQueen, do R.R. 1			O. A. C. 72	16	7	6	17	19	65	2, 15
D. Bruce, Holstein, R.R. 2			do	15	10	8	16	13½	62½	1, 11, 14, 2, 15
Thos. Dingwall, do			do	15	12½	7	12	13½	60	1, 4, 11, 15
Jno. Sinclair, do R.R. 1			do	16	5	5	16	17½	59½	1, 11, 15
V. Alles, do R.R. 2			W. Giant	14	20	6	4	14½	58½	14, 15
A. Hunter, do R.R. 2				15	6	5	15	14½	55½	1, 10, 11, 15, 14
A. E. Caulfield, Mt. Forest, R.R. 2			Banner	12	....	4	17	10	43	1, 11
KEPPEL AGR. SOCIETY.										
<i>Judge—R. R. Fleming, Orton.</i>										
H. Hurlbut, Kemble, R.R. 2			W. Derby	17	24	9	20	25	95	
M. Bedell, do			Peerless	18	24	9	17	25	93	
Jno. Taylor, do R.R. 1			do	18	19	9	17	25	88	1, 15
Arch. Campbell, do R.R. 2				17	10	8	19	24	78	10, 15
J. E. Johnston, do				17	10	8	15	24	74	
Thos. Johnston, do			O. A. C. 72	17	6	7	15	22	67	1, 14
L. Hurlbut, do				16	5	6	14	22	63	1, 2, 15
Chas. Garvie, do				16	3	6	14	21	60	1, 2, 15
D. Davidson, do R.R. 1			W. Derby	13	7	5	14	20	59	
R. Ward, do R.R. 1			Granary Filler	11	6	6	14	20	57	1, 2, 14, 15
Geo. McKenzie, do R.R. 1				11	4	6	13	20	54	1, 15, 14
Jno. Sinclair, do R.R. 1				11	1	6	13	19	50	1
KILSYTH AGR. SOCIETY.										
<i>Judge—R. R. Fleming, Orton.</i>										
Wm. Breen, Tara, R.R. 5			Banner	18	23	9½	19	24½	94	
E. H. Coulter, Owen Sound, R.R. 3			Amer. Beauty	17	23	9	19	24	92	
E. Fleming, Tara R.R. 5			O. A. C. 72	16	20	9	19	23	87	15
A. Fleming, do R.R. 5			Banner	15	20	8	19	23	85	
P. Garvie, do R.R. 4			do	15	18	8	19	23	83	1, 14
W. H. Marshall, Owen Sound, R.R. 5			O. A. C. 72	15	18	5	19	23	80	14, 15
J. J. Fleming, Kilsyth, R.R. 4			Silver Mine	17	20	8	10	24	79	
Geo. Hewiston, Owen Sound, R.R. 5			National	17	18	8	10	24	77	1, 14, 15
Hannah Garvie, Tara, R.R. 4			O. A. C. 72	17	16	8	10	23	74	1, 4, 14, 15
N. S. Mundle, Owen Sound, R.R. 3			Amer. Beauty	17	8	8	10	22	65	1, 14, 15
D. T. Waddell, Kilsyth			Silver Mine	16	10	7	10	20	63	14
B. Porteous, Owen Sound, R.R. 3			Banner	15	8	8	10	21	62	
G. A. Sergeant, do R.R. 5			O. A. C. 72	15	5	8	10	21	59	1, 4, 14, 15
Rich. Jones, Tara, R.R. 3			Granary Filler	14	5	7	10	21	57	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.* OATS.

Competitors in Order of Merit.			Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
				(20)	(25)	(10)	(20)	(25)	(100)	
GREY.— <i>Continued.</i>										
MARKDALE AGR. SOCIETY.										
<i>Judge—Andrew Schmidt, Mildmay.</i>										
Earl Davis, Markdale, R.R. 4	O. A. C. 72.....	18½	17	9½	18	22½	85½	11, 15, 14		
Jas. Findlay, do R.R. 4	do	18½	18	9½	17	22½	85	1, 14, 15		
A. Tolton, do R.R. 5	White Derby.....	17	23	8	15	21½	84½	14, 15		
F. R. Boland, do R.R. 4	Granary Filler...	17½	19	9	16	23	84½	1, 14		
Wm. McLoughry, do R.R. 4	O. A. C. 72.....	15	21	9½	18	20½	84	1		
T. L. Mercer, do	do	16	20	8	17	22	83	1		
W. J. Hamilton, do	do	14½	21	7	15	20	77½	1, 13, 15		
E. Warling, Vandeleur	do	18½	.....	9	18½	23½	69½	1, 2, 14, 15		
E. Baker, Markdale, R.R. 4 ...	do	18½	.....	8	18	23½	68	1		
Jos. Buchanan, Flesherton	do	18½	.....	9	17	22	66½	1, 10, 15		
Otto Foy, Markdale, R.R. 2....	S. Standard.....	16	.....	8	.....	21	45	1, 15		
MEAFORD AND ST. VINCENT AGR. SOCIETY.										
<i>Judge—Walter Baldock, Malton.</i>										
Wm. Pollock, Meaford, R.R. 2	Banner.....	17½	22	9	18	22½	89			
E. E. Martin, do	Granary Filler...	18	20	9	18	23½	88½			
C. R. Shields, do R.R. 1	Danish.....	17½	20	9	18	23½	88			
J. M. Gardner, do R.R. 1	do	18	20	9	18	23½	87½			
J. E. Loughheed, do R.R. 2	S. Standard.....	16½	21	8	18	23½	87			
F. J. Eaton, do	Banner.....	18	19	9	18	22½	86½			
Earl Almond, Fairmount, R.R. 4	do	16½	20	8	17	22½	84			
A. McVittie, Fairmount, W. ...	W. Favorite.....	16	18	8	18	22½	82½			
A. G. Mason, Meaford, R.R. 2	Gold Drop.....	16	17	9	17	22	81	15		
Robt. Almond, do R.R. 4	Siberian.....	16	17	7	15	21	76	1		
NORMANBY AGR. SOCIETY. -										
<i>Judge—Alex. Morrison, Creemore, R.R. 2.</i>										
Jno. Goessel, Ayton, R.R. 1	Sterling.....	17½	23	9	19	23	91½			
Jno. W. Helling, Carlsruhe	Danish Island....	17	23	9	18	23	90			
Jno. Bickel, Mildmay, R.R. 4 ...	O. A. C. 72.....	16½	23	9	19	22	89½	14		
Jas. Booth, Ayton, R.R. 3	Sterling.....	16	22	9	18	23	88			
O. Rassman, Neustadt	Granary Filler...	16	23	9	18	21	87			
J. Allensen, do	O. A. C. 72.....	17	19	8	19	22	85	2		
W. Marshall, do R.R. 1	do	17½	18	8	18	22½	84	14, 2		
Jos. Zettler, do	do	14½	21	8	18	22	83½	15		
F. Lannan, do	Sterling.....	15	20	8	17	22	82	15		
X. Oberle, Carlsruhe	Granary Filler...	14½	20	7	18	21½	81			
Henry Hill, Ayton, R.R. 1 .....	.....	15	22	4	18	21	80			
Wm. Glasser, Neustadt	Banner.....	13½	17	7½	18	21	77	2, 14		

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.		Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
GREY.— <i>Continued.</i>			(20)	(25)	(10)	(20)	(25)	(100)	
OSPREY AGR. SOCIETY.									
<i>Judge—Jas. Boyd, Pickering, R.R. 2.</i>									
E. Hawton, Feversham	O. A. C. 72.....	15	23	8	18	21	85	15	
L. W. Kerton, Maxwell	Early Yielder....	15	21	8	18	22	84	15	
A. Ferguson, do	O. A. C. 72.....	13	23	8	18	21½	83½		
F. J. D. Spofford, Eugenia	do	13	20	9	19	22	83	1, 10	
A. N. Brownridge, Maxwell	do	15	15	9	19	23	81	1, 15	
Jno. Moffatt, Eugenia	do	16	15½	8	17	23	79½	2, 15	
J. A. Kernahan, Maxwell	do	16	12	9	19	23	79	1, 14, 15	
A. Morrison, do	\$1,000.....	17	16	5	17	22	77	1, 15	
W. H. Hall, Singhampton	Lincoln.....	13	17	7½	18	21	76½	1, 15, 4, 10	
E. Buckingham, Maxwell	Amer. Banner....	13	15	9	18	21	76	1, 15	
H. Fenwick, Eugenia	Early Yielder....	13	15	9	17	20	74	2, 4, 11, 15	
R. J. Alister, Maxwell	Derby.....	15	8	9	19	22	73	1, 14, 15	
Jos. Allison, do	O. A. C. 72.....	15	5	8	19	22	69	1	
G. H. Burke, Eugenia	do	12	5	9	18	21	65	1, 2, 4, 10, 15	
PRICEVILLE AGR. SOCIETY.									
<i>Judge—S. B. Stothers, Lucknow, R.R. 7.</i>									
Wm. Paton, Priceville, R.R. 3	O. A. C. 72.....	18	23	7	17	21½	86½	2, 15	
O. Konold, do R.R. 1	.....	15½	20	8	20	21	84½		
D. McMillan, do R.R. 3	O. A. C. 72.....	17½	17	7	18	21	80½	15, 5	
Wm. Mather, do R.R. 1	Banner.....	17½	15	8½	17½	21	79½	2, 15	
D. Nichol, do R.R. 1	O. A. C. 72.....	17½	15	7	18	21½	79	2, 15	
Thos. Nichol, do R.R. 1	Mammoth Cluster	15	20	7	16	20	78	15, 10	
Robt. Knox, Proton, Sta., R.R. 1	Banner.....	18	12½	6	17	21½	75	2, 10, 15	
Wm. Burnet, Priceville, R.R. 3	.....	16	17	5	17	19	74	10, 11, 15	
Jas. Turner, do R.R. 3	.....	15	10	8½	20	19½	73	14, 15, 2	
W. J. Meads, do R.R. 3	.....	11	16	7	17	18	69	2, 15	
Jos. Ferris, do R.R. 3	Daubeney.....	14½	10	6	17	19	66½	1, 11, 15	
D. Campbell, Ayton, R.R. 1	do	13	5	8	5	13	44		
PROTON AGR. SOCIETY.									
<i>Judge—Jas. Boyd, Pickering, R.R. 2.</i>									
R. Cronin & Sons, Riverview ..	Yellow Russian...	17	23	8	18	23	89	15	
J. H. Nicholls, Melancthon	Sensation.....	15	21	8	18	22	84	5, 14	
W. Lonsway & Son, Corbetton, R.R. 3	do	16	17½	8	19	23	83½	2, 14, 15	
El. Ebel, Melancthon	Reg. Banner....	15	21	8	18	21	83	2, 15	
A. Hanna & Sons, Dundalk, R.R. 2	Dew Drop.....	15	18	7½	19	23	82½	2, 4, 15	
Jos. Coulter, do R.R. 1	do	13	23	6½	17	21	80½	15	
Geo. Bell, Corbetton	Amer. Banner....	17	17	7	16	23	80	2, 15	
Jno. McQuarrie, Dundalk, R.R. 2	do	15	18	7½	18	21	79½	2, 4	
J. A. Rath, do R.R. 1	O. A. C. 72.....	15	17	6	19	22	79	2, 15	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
		(20)	(25)	(10)	(20)	(25)	(100)	
GREY.— <i>Continued.</i>								
PROTON AGR. SOCIETY.— <i>Con.</i>								
W. H. Russell, Dundalk, R.R. 4	Sensation.....	17	12½	7	18	23	77½	2, 11, 15
Jno. Earle, Badjeros	Yellow Russian..	17	12	7	18	23	77	1
Jas. Montgomery & Sons, Melancthon, R.R. 2	do	12	16½	8	18	22	76½	2, 10
Jas. Elliott, Corbetton, R.R. 3.	Ligowa.....	13	16	8	18	21	76	2, 15
W. H. Green, Dundalk, R.R. 4	do	16	12	9	15	23	75	2, 15
R. J. Cornett, do	Sensation.....	14	12	8	19	21	74	2, 15
J. A. Russell, do R.R. 4	O. A. C. 72.....	16	8½	7	19	22	72½	2, 1, 11, 15
Thos. Walton, do R.R. 2	Irish.....	15	23	7	5	22	72	15
L. O. Moore & Sons, do R.R. 4	Imp. Cluster....	15	10	8	17	21	71	1, 2, 15
Isaac Hanna, do R.R. 2	Dew Drop.....	14	10	7	18	20	69	2, 5, 10, 15
R. N. Fowler & Sons, Dundalk, R.R. 2	Granary Filler...	16	12	9	5	22	64	2, 15
ROCKLYN AGR. SOCIETY.								
<i>Judge—Geo. E. Foster, Honeywood.</i>								
Geo. Reid, Goring	Banner.....	16	21	7	19	22	85	14, 15
M. E. Abercrombie, Meaford, R.R. 4	O. A. C. 72.....	15	15	9	19	22	80	1
El. McLean, Rocklyn, R.R. 2 ..	do	17	13	9	17	22	78	1
Jno. Yeadell, do R.R. 2...	do	18	10	9	16	24½	77½	1
G. Erskine, Markdale, R.R. 3..	Banner.....	17	10	9	17	22	75	
Thos. Langtree, Fairmount ...	New Century....	15½	10	9	18	20½	73	1, 15
C. G. Devitt, Rocklyn, R.R. 2 ..	O. A. C. 72.....	18	12	9	9	23	71	1, 2
S. Clarke, Markdale, R.R. 2..	New Century....	15	10	9½	13	22½	70	1
A. McInnis, do R.R. 3..	Banner.....	18	....	9	19	22	68	1
J. A. Perry, Fairmount	New Century....	15	8	9	16	19	67	1
J. W. Patton, Rocklyn, R.R. 2..	Banner.....	13½	10	5	17	20½	66	1
Jno. Boyd, Markdale, R.R. 2	O. A. C. 72.....	16½	....	8	16	22½	63	1
L. Shepherdson, do	do	14½	....	9	16	20½	60	1
C. F. Fisher, Meaford	Scottish Hero....	14	....	9	16	20½	59½	1, 15
SOUTH GREY AGR. SOCIETY.								
<i>Judge—S. B. Stothers, Lucknow, R.R. 7.</i>								
J. A. Dixon, Varney, R.R. 1....	Banner.....	17½	22	9	19½	22½	90½	15
J. W. Mather, Hanover, R.R. 1	O. A. C. 72.....	17	22½	9½	19½	21½	90	8
Alex. Grierson, do R.R. 1..	Banner.....	18	22	8½	18½	22½	89½	14, 15
Jas. B. Park, Jr., do R.R. 1..	Imp. Banner....	17	23	9½	17½	21	88	
W. Blyth, Varney	New Sensation...	17½	19	9	19	23	87½	15, 11, 12
D. Edge, Durham, R.R. 1	O. A. C. 72.....	18	16	9	20	22½	85½	1, 2, 10, 15
M. Barber, do R.R. 3	do	18	19	8½	18	21½	85	15, 2
C. & A. Smith, do R.R. 4	Can. Pride.....	16½	18	8	18	20½	81	11, 2, 15
Geo. Finney, Priceville, R.R. 2	O. A. C. 72.....	16	17	8½	18½	21	81	11, 14, 15
T. H. Binnie, do R.R. 2	do	16½	15	8	18½	21½	79½	3, 15, 10, 14
Wm. Weir, Durham, R.R. 1....	Banner.....	15	17	8	18	20½	78½	15, 2, 10
W. W. Ramage, Varney, R.R. 1	O. A. C. 72.....	16	15	8	18	20½	77½	2, 10
Geo. Ritchie, Durham, R.R. 1..	Sterling.....	16½	10	6½	19	20	72	14, 2

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.		Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
GREY.— <i>Continued.</i>			(20)	(25)	(10)	(20)	(25)	(100)	
WALTER'S FALLS AGR. SOCIETY.									
<i>Judge—Geo. E. Foster, Honeywood.</i>									
Thos. Quinton, Walter's Falls..	Banner.....	17	23	9	17	22	88		
Jas. H. Caswell, Bognor, R.R. 2	do	15½	22	9	19	21	86½	1	
Jno. Thom, Walter's Falls	O. A. C. 72.....	18	19	9	18	20	84	1, 15	
E. Quinton, do	Banner.....	15	23	6	18	20	82		
F. Wickham, do	do	14	24	6	16	21	81		
J. J. Seabrook, Markdale	do	16	24	7	12	21	80		
Ed. McKibbin, Bognor, R.R. 2.	Granary Filler..	15½	15	9	17	22½	79	1, 15	
J. W. Murray, Markdale	Mammoth Cluster	15	10	9	19	21	74	1	
Jos. Hartman, Meaford	Banner.....	17	....	8	18	24	67	1, 4	
W. I. Seabrook, Walter's Falls.	do	16	....	9	18	22½	65½	1	
Jas. Bowes, Meaford	Abundance.....	17½	....	9½	16	22	65	1, 2	
Jos. Hawkins, Markdale	O. A. C. 72.....	16	....	7	19	21	63	1	
Jno. Hughes, Walter's Falls ..	Banner.....	14	....	9½	18	20	61½	1	
Ernie McKibbin, Strathavon ..	O. A. C. 72.....	14	....	9	18	19	60	1	
Jno. Dixon, Massie	do	16	....	5	12	21½	54½	1, 11	
J. G. Anderson, Chatsworth ...	Granary Filler...	11	10	8	12	13	54	14, 2	
D. Walters, Walter's Falls	Banner.....	15	10	9	....	19½	53½	1, 2	
HALDIMAND.									
CALEDONIA AGR. SOCIETY.									
<i>Judge—D. English, Burketon, R.R. 3.</i>									
W. J. Moffat, Glanford Sta., R.R. 3	O. A. C. 72.....	19	22	8	19	23	91		
Jas. Yule, Caledonia, R.R. 3	Silver Mine.....	19	21	9	18	23	90	15	
R. F. Duncan, do R.R. 3	Reg. Banner.....	18½	20	10	18	23	89½	14	
Alex. Cowie, do	Alsman.....	17	20	8	20	22½	87½		
Jas. Douglas, do R.R. 2	O. A. C. 72.....	20	16	8	20	22	86	10, 14, 15	
Jas. Gordon, do	do	18	20	8	18	20½	84½	14, 15	
H. R. Kern, do	do	15	18	8	19	22	82	15, 10, 14	
H. Nelles, do R.R. 4	Imp. Banner.....	15½	12	8	18	22½	76		
W. A. Douglas, do	O. A. C. 72.....	14½	13	7	18	21	73½	10, 14, 15	
N. Hyslop, Glanford Sta., R.R. 3	do	13	18	7	16	19	73	15	
Alex. Forbes, Caledonia, R.R. 3	Silver Mine.....	13	18	5	18	18½	72½	14, 15	
Jas. Forbes, do	do	14	13	7	18	20	72	10, 15	
W. J. Gringer, do R.R. 2	O. A. C. 72.....	13	12	7	16	17	65	10, 15	
J. A. Marshall, do	Silver Mine.....	11	15	7	15	17	65	10	
HALDIMAND AGR. SOCIETY.									
<i>Judge—D. English, Burketon, R.R. 3.</i>									
J. Nagel, Fisherville, R.R. 2 ..	Granary Filler...	20	20	10	20	23	93	15	
H. T. J. Gardiner, Cayuga, R.R. 2	O. A. C. 72.....	18	22	8	18½	23	89½	14, 15	
J. Nablo, do R.R. 3	do	18	22	7	20	22	89	15	
C. Ebert, do R.R. 3	do	19	18	8	20	23	88	10, 15, 14	
G. A. Fitzgerald, Selkirk, R.R. 2	do	17	18	8½	20	23	86½	10	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.		Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	Yield and quality of grain.	Totals of scores.	†Weeds in competitors' fields.
HALDIMAND.— <i>Continued.</i>			(20)	(25)	(10)	(20)	(25)	(100)	
HALDIMAND AGR. SOCIETY.— <i>Con.</i>									
N. Mehlenbacher, Cayuga, R.R. 3	Big Four.....	18	20	7	18	23	86	14	
W. G. Beabion, Selkirk, R.R. 2	O. A. C. 72.....	15½	20	7	20	23	85½	15	
C. J. Smelser, Hagersville, R.R. 2	Irish.....	16	20	7	18	24	85		
S. A. Best, Cayuga, R.R. 4	O. A. C. 72.....	13	20	7	20	24	84	15	
J. H. Schwyer, Fisherville, R. R. 2	Early Yelder....	16	20	8	18	21	83	14	
L. F. Culver, Selkirk, R.R. 2...	Irish.....	14½	20	7	20	20	81½		
Martin Nagel, Fisherville, R.R. 2	.....	16½	18	8	17	21	80½	14	
R. Fess, do	O. A. C. 72.....	14	20	8	17	21	80		
G. W. Parsons, Cayuga, R.R. 2...	do	17	16	7	17	22½	79½	10, 14, 15, 5	
A. Mehlenbacher, do R.R. 3...	do	15	17	7	20	20	79	2, 14	
F. Walsh, do	W. Jewel.....	16	16	7	15	21½	75½	15, 2, 14	
N. Last, do R.R. 4...	Amer. Banner....	13	14	8	17	21	73	15, 10	
Wm. Roth, Fisherville	Early Yelder....	11½	20	7	16	18	72½	14	
Jos. Peacock, Jarvis, R.R. 3....	Banner.....	11½	16	7½	18	18½	71½	14	
B. J. Booker, Fisherville, R.R. 2	O. A. C. 72.....	12	17	7	16	19	71	14, 4	
P. Hartwick, do R.R. 2	Banner.....	9½	20	6	16	19	70½		
V. Sitter, Cayuga	Derby.....	13	17	7	16	16	69	14, 15, 10	
Jno. McConnell, do R.R. 2...	Big Four.....	13	13	8	15	19	68	10, 15, 2	
WALPOLE AGR. SOCIETY.									
<i>Judge—Arch. Greer, Mansfield, R.R. 1.</i>									
Robt. Wilson, Jarvis.....	Alaska.....	18½	22	9	19	20	88½		
Thos. Brown, do	Imp. Banner.....	17	20	8	19	22½	86½	14	
R. H. Miller, do R.R. 3...	O. A. C. 72.....	16½	20	7	18	24	85½	14	
J. B. McKenzie, Nanticoke, R.R. 1	do	16½	21	8	17	22½	85	14	
Jno. Mitchell, Jarvis, R.R. 3....	Lincoln.....	17½	21	8	12	21	79½	14	
G. Rosser, do	Imp. Banner.....	15	21	7	17	19	79	14	
Neal Brown, Simcoe, R.R. 5	Ligowa.....	11½	19	9	18	20	77½	4, 2, 15	
Jno. Woodham, Jarvis, R.R. 1..	Prince Royal....	16	17	7	15	20	75	10, 14	
HALTON.									
HALTON AGR. SOCIETY.									
<i>Judge—Geo. McKagac, Woodville, R.R. 4.</i>									
A. S. Willmott, Milton, R.R. 2	O. A. C. 72.....	17	23	9½	19½	21½	90½		
W. N. Scott, do	do	18	21	9	19½	22½	90	10	
II. W. Richardson, do R.R. 1	.....	18	20½	9½	19	22½	89½		
E. Readhead, do R.R. 2	O. A. C. 72.....	17	21	9½	19	22½	89	2, 15	
Ed. Harrop, do	do	17½	21	9	19	22	88½	2, 14	
G. E. Gastle, do R.R. 2	Banner.....	17½	22	9½	19	20	88	15, 2	
A. S. Wilson, do R.R. 1	O. A. C. 72.....	17	20	9	19	22½	87½	15, 2	
H. Dixon, do R.R. 1	Granary Filler...	18	19	9	19	22	87	14, 15, 10	
Wm. Hume, do R.R. 1	O. A. C. 72.....	15	23	9½	19	20	86½	15	
E. A. McDougall, do	Ligowa.....	17½	19	7	19½	23	86	2, 15	
W. A. McCartney, do R.R. 4	Irish.....	16½	22	9½	15	22½	85½	15	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.			Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
				(20)	(25)	(10)	(20)	(25)	(100)	
HALTON.— <i>Continued.</i>										
HALTON AGR. SOCIETY.— <i>Con.</i>										
S. T. Coulson,	Milton,	R.R. 2	O. A. C. 72.....	16	21	8	19½	20½	85	15
J. H. Wilson,	do	.....	Banner.....	17½	18	9	18	21½	84	4, 2, 15
E. A. McCann,	do	R.R. 4	White Wave.....	17	21	8	15	22	83	2, 14
G. A. Wilson,	Georgetown,	R.R. 3	Banner.....	17½	15	9	18	21½	81	15, 14
Wm. Slacer,	Milton,	R.R. ...	Granary Filler...	16½	10	9½	19	22	77	1, 14, 4, 2
J. W. Elliott,	do	R.R. 5	Tartar King.....	17	15	8	15	21	76	15, 2, 14
NELSON AND BURLINGTON AGR. SOCIETY.										
Judge—Geo. McKague, Woodville, R.R. 4.										
L. Kerns,	Freeman,	R.R. 2	O. A. C. 72.....	19	24	9½	19½	24	96	
Jno. Easton,	do	R.R. 2	do	18	25	9½	19½	21	93	
W. W. Cline,	do	R.R. 2	do	17	24	9½	19	23	92½	15
W. E. Breckon,	do	R.R. 2	do	17½	22	9	19	23	90½	10
H. A. Foster,	Campbellville, R.									
R. 3	.....		do	18	21	9½	19	22½	90	15, 10
F. Wilkerson,	Freeman,	R.R. 2	Amer. Banner...	18	20	9½	19	23	89½	15, 10
G. S. Peart,	do	R.R. 1	Victor.....	17½	21	9	19	22½	89	15
G. Breckon,	Merton	.....	O. A. C. 72.....	17	20	9	19½	23	88½	15, 4
Jos. Richardson,	Freeman,	R.R. 2	do	17	20	9½	19	22½	88	15, 4, 14
H. M. Pettit,	do	R.R. 2	do	17	18	9½	19½	22½	86½	15, 12, 10
A. Heslop,	do	R.R. 2	Irish.....	17½	18	9½	18	22½	85½	10, 15
I. I. Devitt,	do	R.R. 2	O. A. C. 72.....	17	17	9½	19	22½	85	15, 14
J. H. Wilson,	Hamilton,	R.R. 4	do	18½	16	9	19	22½	85	15, 2, 10
Jno. Heslop,	Freeman,	R.R. 2	do	17	16	9	19½	22½	84	2, 15, 1
P. Cole,	do	R.R. 2	do	18	15	9	19½	22	82½	15, 1
C. E. Wood,	do	R.R. 2	W. Derby.....	16½	15	9	19	21½	81	4, 15, 2
C. N. Blanshard,	do	R.R. 2	O. A. C. 72.....	16½	14	8	19	21	78½	15, 10, 4, 2
HASTINGS.										
FRANKFORD AGR. SOCIETY.										
Judge—S. G. Gourlay, Kinburn.										
D. I. Rose,	Frankford	.....	Mammoth Cluster	18½	25	9	19	22½	94	
M. Vanderwaters,	do	.....	O. A. C. 72.....	18	24	9	19	22½	92½	
C. H. Ketcheson,	Belleville,	R.R. 2	Victory.....	17½	24	8	19	21½	90	10
T. H. Ketcheson,	do	.....	Early Yields...	18½	22	8	17	22½	88	10
F. R. Mallory,	Frankford	.....	Banner.....	19	19	9	17	22	86	2
H. J. Gay,	do	.....	do	16	21	8	18	21	84	
D. E. Coon,	do	.....	do	18½	17	8	18	21½	83	2
B. W. Meyers,	Trenton	.....	Early Yields...	17	20	8	16	21	82	4
J. A. Macaulay,	Frankford,	R.R.	Banner.....	19½	10	9	17	23	78½	2, 1

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
		(20)	(25)	(10)	(20)	(25)	(100)	
HASTINGS.—Continued.								
MADOC AGR. SOCIETY.								
<i>Judge—Wm. Higginson, Inkerman.</i>								
I. Broadworth, Madoc	Granary Filler...	17½	23½	8½	17	22½	89	15
Jno. Rollins, Cooper .....	.....	15½	23½	7½	18	22½	87	15
W. H. Kells, Madoc	O. A. C. 72.....	17	20½	8	19	22	86½	15, 10, 12
J. C. Smith, do	Swedish Victor...	17	22	8	17	20	84	10
J. A. Caskey, do	Banner.....	15½	20	8	17	20	80½	15, 10
J. A. Empey, Eldorado .....	.....	16	20	8	15	21	80	15, 12
H. Rollins, Cooper	O. A. C. 72.....	15½	18	7½	18	20½	79½	15, 12, 13
J. S. Empey, Eldorado .....	.....	16	20	8	15	19	78	15, 12
W. T. Harris, Madoc	O. A. C. 72.....	13	21	7½	16	19	76½	15, 12
Jas. Moore, Queensboro .....	.....	15	20	9	10	19	73	15, 3
S. McCarey, Eldorado	Rennie's Early							
	Yielder.....	14½	16	7	16	19	72½	2, 10, 15
H. Tokley, Queensboro	Granary Filler...	14	18	5	14	19	70	10, 15, 12
Chas. Robinson, Eldorado .....	.....	13½	20	8	10	18	69½	15
MAYNOOTH AGR. SOCIETY.								
<i>Judge—Geo. McKague, Woodville.</i>								
Jno. McAlpine, Maynooth Stat'n	Banner.....	17½	22½	7	19½	20	86½	10
Jas. McAlpine, Sr., do	O. A. C. 72.....	16	22	9	19½	19½	86	15
Jas. McAlpine, Jr., do	Yellow Russian...	18	22½	5	19½	20½	85½	10
Chas. Kelusky, do	O. A. C. 72.....	17½	22	6	19½	20	85	15, 10
C. I. H. Jordison, Hybla, R.R. 1	do	17	18	9	20	20½	84½	10, 15
W. J. Douglas, Maynooth	Bumper King....	17	22	6	17	20	82	10, 5
Thos. Vanallan, Greenview ....	.....	16½	20	8	16½	20	81	15
Jas. McLean, do	Bumper King....	14½	23	6	17	20	80½	
H. Goltz, Maynooth .....	.....	16	18	8	18	19½	79½	15, 10
Jno. Hines, Maynooth Station..	Granary Filler...	16½	20	9	13	20½	79	4
Robt. Davis, Greenview	Banner.....	14½	20	7	17	19½	78	11, 15
G. W. Wilson, Maynooth Stat'n	Mammoth Cluster	16½	17	8	15	20	76½	15, 10, 4
STIRLING AGR. SOCIETY.								
<i>Judge—Wm. Higginson, Inkerman.</i>								
E. Abbott, Stirling, R.R.....	White Wave.....	17½	24	9	19	23½	93	14
J. A. Bailey, Harold	Amer. Banner....	17	21	9	19	22½	88½	15, 14, 10
T. J. Thompson, Springbrook .	O. A. C. 72.....	17	20	9	19	22½	87½	11, 15
Alex. Fargey, Stirling	Banner.....	17	20	8	17	21	83	14, 10, 15
C. M. Sine, Harold, R.R.....	Sensation.....	16	20	8	17	21½	82½	15
C. Tucker, do R.R. 1....	S. Select.....	16	19	8	17	22	82	1, 15
A. D. McIntosh, Stirling, R.R...	Reg. Banner....	16	21	7½	17	20	81½	15, 10
D. Fargey, W. Huntingdon ...	Imp. Banner.....	16	19	7	17	20	79	12, 1
M. Shea, Stirling	Banner.....	15	20	7	16	19½	77½	15, 12
Thos. Montgomery, do	do	15	16	7	17	21	76	1, 12, 10, 2
J. W. Haggarty, W. Huntingdon	.....	14½	12	8½	17	19½	71½	1, 15

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	Yield and quality of grain.	Totals of scores.	*Weeds in competitors' fields.
HASTINGS.— <i>Continued.</i>		(20)	(25)	(10)	(20)	(25)	(100)	
WOLLASTON AGR. SOCIETY.								
<i>Judge—Geo. McKague, Woodville, R.R. 4.</i>								
C. McGregor, The Ridge	O. A. C. 72.....	17 $\frac{1}{2}$	20	9 $\frac{1}{2}$	19 $\frac{1}{2}$	22	88 $\frac{1}{2}$	10, 15, 4
A. Danford, Coe Hill	Banner.....	17 $\frac{1}{2}$	21	9	19	21 $\frac{1}{2}$	88	15
D. Henderson, The Ridge.....	do	17	20	9	19	21 $\frac{1}{2}$	86 $\frac{1}{2}$	10, 15
D. Moore, do	Rennie's Early Yielder.....	17 $\frac{1}{2}$	18	9 $\frac{1}{2}$	19	21 $\frac{1}{2}$	85 $\frac{1}{2}$	10, 15
Chas. Rassin, Glen Alda	Banner.....	17	20	8 $\frac{1}{2}$	17	21 $\frac{1}{2}$	84	15
R. J. Henderson, The Ridge ..	do	16 $\frac{1}{2}$	17	9 $\frac{1}{2}$	19	21	83	10, 15, 4
Jno. Gilroy, Coe Hill	do	16 $\frac{1}{2}$	20	7	18 $\frac{1}{2}$	20 $\frac{1}{2}$	82 $\frac{1}{2}$	10, 15
D. Maitland, The Ridge	do	16	20	9 $\frac{1}{2}$	15 $\frac{1}{2}$	20	81	4, 10, 15
A. Bird, Coe Hill	do	15 $\frac{1}{2}$	20	8	18	19	80 $\frac{1}{2}$	10
A. Ingram, Faraday	do	16	17	9	18	20	80	10, 15
H. Hennessy, Coe Hill	Banner.....	15 $\frac{1}{2}$	17	7 $\frac{1}{2}$	18	20	78	10, 15, 11
Roy Wilson, do	do	16	19	9	14	19	77	15, 5
HURON.								
BLYTH AGR. SOCIETY.								
<i>Judge—Geo. Binnie, Priceville, R.R. 2.</i>								
D. McCallum, Blyth	O. A. C. 72.....	18	24	8	19	23	92	
J. & F. Laidlaw, Walton, R.R. 2	Imp. Banner.....	16	24	9	18	22	89	
D. A. Laidlaw, Blyth	Danish.....	17 $\frac{1}{2}$	23	8	18	22	88 $\frac{1}{2}$	14
D. Laidlaw, Walton	Baltic.....	16	24	7	17	22	86	
J. & W. Grey, Blyth	Imp. Banner.....	13 $\frac{1}{2}$	23	8	18	23	85 $\frac{1}{2}$	
H. Young, do	White Cluster....	15 $\frac{1}{2}$	21	8	18	21	83 $\frac{1}{2}$	14, 15
Robt. Wightman, do	Bumper King....	14 $\frac{1}{2}$	22	8	18	20 $\frac{1}{2}$	83	
R. G. McGowan, do	Golden Drop.....	16	20	7	17	22	82	2, 14
Wm. McGowan, do	do	16	17	8	18	22	81	1, 11, 2
Jas. Jackson, Walton, R.R. 3..	Banner.....	17	10	8	18	22	75	1
EAST HURON AGR. SOCIETY.								
<i>Judge—Geo. Binnie, Priceville, R.R. 2.</i>								
T. & E. McKerchar, Wroxeter..	O. A. C. 72.....	17 $\frac{1}{2}$	24	9	19 $\frac{1}{2}$	23	93	
John Lowe, Brussels, R.R. 5	do	17 $\frac{1}{2}$	24	9	19	22 $\frac{1}{2}$	92	
Ed. Fulton, do R.R. 2	do	18	23	9	19	22 $\frac{1}{2}$	91 $\frac{1}{2}$	14
J. H. Hoover, do R.R. 3	Gold Drop.....	16	24	9	18	22	89	
R. J. Hoover, do R.R. 3	O. A. C. 72.....	15 $\frac{1}{2}$	23	9	19	22	88 $\frac{1}{2}$	
Wm. Armstrong, do	Gold Drop.....	17	20	9	19	23	88	2, 14
W. Broadfoot, do R.R. 4	G. Mountain.....	16	23	7	19	22	87	14
Jno. Crerar, do R.R. 3	O. A. C. 72.....	16	23	8	18	21	86	
Wm. Bird, do	Imp. Banner.....	16	20	8	18	23	85	12
D. McKinnon, do	Golden Gem.....	15 $\frac{1}{2}$	22	8	17	22	84 $\frac{1}{2}$	14
R. L. Nichol, do R.R. 4	do	15 $\frac{1}{2}$	22	8	17	21 $\frac{1}{2}$	84	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.				Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores	†Weeds in competitors' fields.
HURON.—Continued.					(20)	(25)	(10)	(20)	(25)	(100)	
EAST HURON AGR. SOCIETY.— <i>Con.</i>											
Jas. Nichol,	do	R.R. 4	O. A. C. 72.....	15	23	8	17	20 $\frac{1}{2}$	83 $\frac{1}{2}$		
A. Lamont,	do	R.R. 3	do	14 $\frac{1}{2}$	21	8	18	22	83 $\frac{1}{2}$		
O. Turnbull,	do	R.R. 2	do	16	18 $\frac{1}{2}$	8	18	22	82 $\frac{1}{2}$	2	
Wm. R. Moses, Bluevale	.....		Golden Gem.....	14 $\frac{1}{2}$	21	8	17	22	82 $\frac{1}{2}$		
Robt. McDonald, Brussels,	R.R. 3		Ligowa.....	16	20	7	16	22	81	14, 1	
Wm. Sleman,	do	R.R. 3	O. A. C. 72.....	14 $\frac{1}{2}$	18	8	17	22	79 $\frac{1}{2}$	14, 2	
Geo. Menzies,	do	R.R. 3	New Century.....	17	15	7	17	22	78	2, 14, 1	
C. Armstrong,	do	R.R. 3	O. A. C. 72.....	14	15	8	19	21 $\frac{1}{2}$	77 $\frac{1}{2}$	10, 11	
Alex. McLauchlin,	do	R.R. 5	do	15	15	8	18	21	77	1	
Jos. Armstrong,	do	R.R. 3	.....	14	17 $\frac{1}{2}$	8	17	20	76 $\frac{1}{2}$	14, 2	
W. J. Sharp,	do	R.R. 3	.....	14	18	8	15	21	76	1, 12	
L. B. Cardiff,	do	.....	O. A. C. 72.....	14 $\frac{1}{2}$	10	8	17	20 $\frac{1}{2}$	70	1, 2	
HOWICK AGR. SOCIETY.											
<i>Judge—Thos. Creighton, Mooretown.</i>											
R. Wilkin, Palmerston,	R.R. 3	O. A. C. 72.....	18	19	7	20	23	87	15		
H. Sparling, Gorrie,	R.R. 2	do	16 $\frac{1}{2}$	22	7	18	22 $\frac{1}{2}$	86	15		
Alex. McLaughlin,	do	R.R. 1	do	17	18	7	20	22	84	1, 15	
W. Brown, Sr.,	do	R.R. 1	do	17 $\frac{1}{2}$	16 $\frac{1}{2}$	5	20	21 $\frac{1}{2}$	80 $\frac{1}{2}$		
J. A. Edgar, Wroxeter	.....		do	15 $\frac{1}{2}$	20	6	20	18 $\frac{1}{2}$	80	15, 14	
W. Edgar, Gorrie,	R.R. 2	New Century.....	15	20	7	16	21	79	15, 12		
A. Kiel,	do	R.R. 2	O. A. C. 72.....	16	16	5 $\frac{1}{2}$	18	21	76 $\frac{1}{2}$	15, 1	
E. A. Fallis, Fordwich	.....		do	15	20	6	15	19 $\frac{1}{2}$	75 $\frac{1}{2}$	1, 15	
R. J. Sanderson,	do	do	15	15	6	18	21	75	1		
T. Johnston, Gorrie,	R.R. 1	.....	16 $\frac{1}{2}$	14	5 $\frac{1}{2}$	17	21 $\frac{1}{2}$	74 $\frac{1}{2}$	1		
R. F. Edgar,	do	R.R. 2	O. A. C. 72.....	14	15	7	18	20	74	1, 2	
Ed. Krohn,	do	do	17	.....	8	20	22	67	1		
H. W. Edgar,	do	R.R. 2	do	17 $\frac{1}{2}$	.....	8	18	22	65 $\frac{1}{2}$	1, 2	
J. A. Bryans, Fordwich	.....	S. Standard.....	15 $\frac{1}{2}$	20	5	5	19 $\frac{1}{2}$	65	15, 12		
P. F. Doig,	do	.....	15 $\frac{1}{2}$	.....	6	17	21	59 $\frac{1}{2}$	1, 2		
Jos. Davidson,	do	.....	O. A. C. 72.....	10 $\frac{1}{2}$	20	6	10	13	59 $\frac{1}{2}$	15, 12, 14	
TURNBERRY AGR. SOCIETY.											
<i>Judge—Thos. Creighton, Mooretown.</i>											
R. Wilton, Wingham,	R.R. 1	O. A. C. 72.....	16	24	8	19	22 $\frac{1}{2}$	89 $\frac{1}{2}$			
J. W. Fortune,	do	do	14 $\frac{1}{2}$	24 $\frac{1}{2}$	8	19	21 $\frac{1}{2}$	87 $\frac{1}{2}$			
Jno. Shiell,	do	R.R. 3	Yellow Russian...	17 $\frac{1}{2}$	22	8	17	22 $\frac{1}{2}$	87		
P. Leaver,	do	R.R. 3	O. A. C. 72.....	17 $\frac{1}{2}$	22	7	18	22	86 $\frac{1}{2}$		
M. McMillan & Sons, Lucknow,	R.R. 1	.....	W. Jewel.....	16	22	8	18	21	85		
G. N. Underwood, Wingham,	R. 1	.....	Sensation.....	15	20	7 $\frac{1}{2}$	19	21	82 $\frac{1}{2}$		
H. T. Perdue, Wingham,	R.R. 5	O. A. C. 72.....	15	22	7	19	18 $\frac{1}{2}$	81 $\frac{1}{2}$	5, 12		
Wm. Webster, Lucknow,	R.R. 2	20th Century.....	14	22	7	17	21	81			

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
HURON.— <i>Continued.</i>		(20)	(25)	(10)	(20)	(25)	(100)	
TURNBERRY AGR. SOCIETY.— <i>Con.</i>								
A. H. Proctor, Brussels	O. A. C. 72.....	17½	18	7	15	22	79½	
F. Henry, Lucknow, R.R. 5 ..	Granary Filler...	13½	20	7	17	19	76½	
A. McDonald, Wingham, R.R. 2	O. A. C. 72.....	14	15	8	16	20½	73½	
S. Burchill, do R.R. 2	Gooderham, No. 2.	10½	17	7	17	20	71½	
M. Ross, Lucknow, R.R. 2	Granary Filler...	15	10	7	17	22	71	1
Robt. Currie, Wingham, R.R. 5	New Zealand.....	14	21	6	15	14	70	
O. Campbell, do R.R. 4	Tarter.....	16½	....	8	15	22½	62	1
Wm. J. Currie, do R.R. 5	W. Logan.....	16	5	7	12	20½	60½	1, 2
ZURICH AGR. SOCIETY.								
<i>Judge—M. M. Hunter, Onondaga.</i>								
O. Klopp, Zurich, R.R. 2..	O. A. C. 72.....	17½	23	8	19	23½	91	15
E. Klopp, do R.R. 3..	do	17	22	9	19½	23	90½	15, 3
C. Truemner, do R.R. 2..	do	17	22	9	19	22½	89½	15
Wm. C. Pearce, Hensall	do	18	21	7	19	23	88	
Ed. Broderick, do	do	16	21	8	19	23	87	14, 15, 1
A. Rannie, Zurich	do	16	23	7	19	21½	86½	15
C. Schilbe, do	do	14½	22	8	19	22	85½	14
L. H. Rader, Dashwood	Banner.....	15½	20	7	17	22	81½	2
Jas. Green, Hensall, R.R. 2	Waverley.....	18	5	9	18	21	71	1
KENORA.								
DRYDEN AGR. SOCIETY.								
<i>Judge—John McKay, Emo.</i>								
D. F. McKenzie, Eagle River ..	N. Industrial.....	16	22	8	19	22	87	
A. Skene, Sr., Dryden	Victory.....	17	22	8	18	21	86	
T. H. Lewis, Oxdrift	Gold Rain.....	16	22	7	17	22	84	
John Adams, do	Victory.....	14	22	8	18	20	82	
Wm. Devoe, do	E. Victory.....	12	23	8	18	19	80	
D. Neely, do	do	13	20	8	18	19	78	
Ed. Dawkins, Dryden	Industrial.....	15	15	8	16	20	74	2
C. O. Self, do	do	12	18	7½	17	18	72½	
E. Wice, do	Victory.....	14	17	8	16	17	72	7, 13
J. A. Brignall, Oxdrift	do	11	20	9	10	17	67	
A. R. Hutchison, Dryden	do	12	15	7	16	16	66	
Jno. Hutchison, do	Bumper King.....	12	10	8	10	17	57	
KENORA AGR. SOCIETY.								
<i>Judge—John McKay, Emo.</i>								
Gould Bros., Kenora	do	14	18	7	17	22	78	2
H. Sherwood, do	do	17	9	9	18	22	75	2, 1
Wm. Tew, do	New Zealand							
	Wonder.....	13	20	4	15	19	71	15

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.* OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	Yield and quality of grain.	Totals of scores.	*Weeks in competitors' fields.
		(20)	(25)	(10)	(20)	(25)	(100)	
KENORA.— <i>Continued.</i>								
KENORA AGR. SOCIETY.— <i>Con.</i>								
Jas. Smith, Pellatt		15	10	8	16	21	70	2
A. R. Ascough, Kenora		15	6	7	17	21	66	12, 1
Wm. Greenwood, do		15	4	8	17	20	64	2, 5, 9
C. Outen, do		12	9	7	16	19	63	2, 1
T. Cederwall, Pellatt		14½	10	7	14	17	62½	2, 15, 1
J. A. Froseberg do		12	9	8	13	20	62	2, 13, 15
A. Berglund, do		11	12	4	14	20	61	2, 1
S. Sundin, Keewatin		14	....	7	18	18	57	1, 15
Wm. McKreth, Kenora		7	14	8	16	11	56	1, 12
KENT.								
HOWARD AGR. SOCIETY.								
<i>Judge—R. H. Harding, Thorndale.</i>								
C. West, Northwood	O. A. C. 72.....	16	22	7	19	21½	85½	15, 14
E. Brien & Son, Ridgetown....	Banner.....	15	23	8	18	20	84	15
Wm. Brien & Sons, do	O. A. C. 72.....	13½	23	8½	18	20	83	
W. R. McDonald, do	do	16	20	7	18	20½	81½	15
J. D. Brien, do	do	16	7	9	19½	22	73½	2, 14
Edw. Smith, do	do	12½	18	7	17	18	72½	14, 15
Wm. Steen, Northwood		14	20	8	10	20	72	
Neil McKay, do		14½	17	7	12	21	71½	15
G. Wedge, Ridgetown	Abundance.....	16	6	9	18	20½	69½	10, 12
Jas. Leatherdale & Sons, Northwood	O. A. C. 72.....	17½	22	8	....	21½	69	15
WALLACEBURG AGR. SOCIETY.								
<i>Judge—R. H. Abraham, Chatham, R.R. 1.</i>								
D. Coveny, Electric	Banner.....	19½	24½	9½	19½	24½	97½	
D. L. McCreary, Wallaceburg, R.R. 3	do	19	24½	9½	19½	24½	97	
O. Crowe, Wallaceburg, R.R. 5	O. A. C. 72.....	18½	24	9½	19½	24½	96	
Chester Crowe, do R.R. 5	do	18½	24	9½	19½	24½	95½	15
J. E. Richardson, do R.R. 2	Banner.....	19	22½	9½	19	24	94	
Thos. Fox, Electric	do	18	22	9	18	23	90	
F. Warren, Wallaceburg, R.R. 5	do	17	22	8½	18½	23	89	15, 4
W. C. Gordon, Electric	Bonanza.....	17½	21	8	19	23	88¾	
Jno. Coveny, do	Banner.....	17½	20	9	19	23	88¾	
Geo. Crawford, do	do	17½	22	8½	16	22	86	
J. M. Langstaff, Tupperville, R.R. 3	do	16	22	8	17½	21½	85	15
D. Crawford, Electric	do	16½	20	9	17	22	84½	15
A. E. Frye, Wallaceburg, R.R. 1	Chester.....	16½	22	8	14	22	82½	
S. J. Harper, do R.R. 1	O. A. C. 72.....	14	17	8	16	22	77	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
LAMBTON.		(20)	(25)	(10)	(20)	(25)	(100)	
BROOKE AND ALVINSTON AGR. SOCIETY.								
<i>Judge—E. J. Mullins, Woodslee.</i>								
E. Armstrong, Bothwell, R.R. 2	Bonanza.....	19½	24	9½	17½	24	94½	
D. Hayter, Alvinston, R.R. 4	Abundance.....	16	23	10	19	22	90	
Thos. Braithwaite, do	do	16	22	9	19	23½	89½	
F. W. Oke, do	O. A. C. 72.....	16	23	8	20	22	89	
T. H. Lovell, do	do	17½	21	9½	19	21½	88½	
L. Lehrbass, do	R.R. 4 Abundance.....	16	22	9	19	22	88	
D. G. Maddock, do	R.R. 7 do	17½	22	9	18	21	87½	14
Jas. Hand, do	R.R. 4 Imp. Banner....	14½	23	8	19½	22	87	
Edw. Reader, do	R.R. 4 O. A. C. 72.....	15	25	10	20	16	86	
L. W. Oke, do	R.R. 2 do	14	23	8	19	20½	84½	
Geo. Lightfoot, do	R.R. 7 do	15	22	8	19	20	84	
Jas. McCallum, do	R.R. 4 Abundance.....	15	23	8	17	20	83	
Geo. H. Oke, do	.....	16½	12	9	18	21	76½	15
H. A. Gilroy, do	R.R. 6 O. A. C. 72.....	17	10	9	19	21	76	10, 15
H. Darvill, do	R.R. 7 do	17	....	8	18	19	62	14
EAST LAMBTON AGR. SOCIETY.								
<i>Judge—E. J. Mullins, Woodslee.</i>								
Jno. Zavitz, Alvinston, R.R. 7	Banner.....	20	25	9	20	22½	96½	
W. H. Shugg, do	 Abundance.....	19	24	9	19	21½	92½	
Geo. McCabe, do	 Silver Mine.....	16½	24	9	18	22	89½	
Wm. W. Taylor, do	R.R. 7 O. A. C. 72.....	17	24	9	18	21	89	
Thos. Kidd, Watford, R.R. 3	Banner.....	18½	18	9	19	22½	87	15
J. McCormick, do	R.R. 5 do	18	16	9	19	23½	85½	
H. Shirley, do	R.R. 3 Silver Mine.....	16	21	9	19	19½	84½	
H. A. Holbrook, do	 English.....	16	22	8	18	20	84	14
Jas. Coke, Alvinston	Abundance.....	14	20	8	18	20	80	14
E. A. Kidd, Watford, R.R. 3	Banner.....	15	16	9	19	20	79	15
PETROLIA AND ENNISKILLEN AGR. SOCIETY.								
<i>Judge—W. M. Abraham, Chatham, R.R. 1.</i>								
Thos. Simpson, Glenrae	O. A. C. 72.....	18	22½	8½	19½	22	90½	
Jno. Kirkpatrick, Petrolia, R.R. 4	do	15	20	8½	19½	22½	85½	15, 8
Jos. Metcalf, do	R.R. 3 do	18	15½	8½	19½	23	84½	15
W. J. Balls, do	R.R. 4 Banner.....	17	17½	8	18½	21	82	15, 12
D. A. Duncan, do	R.R. 3	16	15	7	17	21½	76½	15
Geo. Graham, Oil City	Banner.....	16	16	7	17	20	76	
W. A. Brock, Petrolia, R.R. 4	.....	16½	17	7½	15	19½	75½	15
Jno. Welsh, Mooretown .....	.....	15	16	7	17	20	75	
F. E. Steadman, Petrolia, R.R. 3	.....	15½	16	8½	14	20½	74½	15
J. H. Burnard, do	R.R. 4 O. A. C. 72.....	11	22	9	19	13	74	15
D. A. McDougall, do	R.R. 4 Silver Mine.....	12	15	8½	17½	9½	6½	15

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	Yield and quality of grain.	Totals of scores.	*Weeds in competitors' fields.
		(20)	(25)	(10)	(20)	(25)	(100)	
LAMBTON.— <i>Continued.</i>								
PLYMPTON AND WYOMING AGR. SOCIETY.								
<i>Judge—W. M. Abraham, Chatham, R.R. 1.</i>								
J. F. Donald, Wyoming, R.R. 1	O. A. C. 72.....	17	23	9	19½	23	91½	
Arch. Smith, do R.R. 3	do	18	24	6½	19	23½	91	
R. R. Smith, do R.R. 3	Banner.....	17½	23	9	19	22	90½	
R. S. Jardine, Camlachie	Abundance.....	17	22	9	18½	23½	90	
Geo. A. Dewar, Wyoming, R.R. 2	Jewel.....	16	21½	9	20	22½	89	15
H. Bryson, do R.R. 2	O. A. C. 72.....	16½	21	9	19½	22	88	15
Jos. Bryson, do R.R. 1	Banner.....	17	22½	7	20	22	87½	4, 15
A. S. Minielly, do R.R. 2	O. A. C. 72.....	16	20	9	20	22	87	15
Hugh Hunter, Petrolia, R.R. 3	do	15	20	7½	19	20	81½	15
Jas. Bryson, Wyoming, R.R. 2	Banner.....	15	20	7	17½	20½	80	15
Thos. Smith, do R.R. 3	O. A. C. 72.....	15	18½	6½	19	20	79	15
Thos. Anderson, do R.R. 3	Banner.....	15½	17½	8	15½	20	76½	15, 4
H. Anderson, do R.R. 3	do	15½	17	8	15½	20	76	15
Chas. Smith, do R.R. 3	O. A. C. 72.....	14½	16	7½	19¾	18	75¾	15
Geo. Hartley, do R.R. 3	do	13½	17	7½	18	17	73	15
SOMBRA AGR. SOCIETY.								
<i>Judge—R. H. Abraham, Chatham, R.R. 1</i>								
J. H. Dupuis, Sombra, R.R. 3	O. A. C. 72.....	19	23	9½	19¾	24¾	96	15
H. Sheller, Port Lambton ...	Manmoth Cluster	18½	23½	9½	19½	24½	95½	
R. Payne, do	O. A. C. 72.....	19	23½	9½	19	23½	94½	15
J. C. Reid, Wallaceburg, R.R. 5	do	18	23	8½	19	23½	92	4
F. H. Burgua, Sombra, R.R. 3.	do	17	23	8½	19	23½	91	
R. Stenton, Port Lambton ...	do	17½	22	8	19	23	89½	
Jno. McRae, do	Banner.....	17	21	8	19	23	88	4
J. C. McMillan, do	O. A. C. 72.....	15½	22	6	18	22	83½	4
J. T. Dawson, do	Wide-a-wake....	17	20	8	17	21	83	4
W. J. Wadsworth, do	20th Century....	15	18	8	18	23	82	
S. S. Deyo, Wallaceburg, R.R. 5	Wide-a-wake....	16	14	7	19½	23	79½	15, 4
S. McDonald, Port Lambton ..	O. A. C. 72.....	16	20	4	17	22	79	
H. Stenton, do	do	16	16	4	17	21	74	
LANARK.								
DRUMMOND AGR. SOCIETY.								
<i>Judge—C. I. H. Jordison, Hybla, R.R. 1.</i>								
P. S. McLaren, Perth, R.R. 2	Reg. Banner.....	17	23	9	19	22½	90½	14
P. M. Campbell, do R.R. 2	O. A. C. 72.....	17½	21	9½	18½	22	88½	11, 14, 10
H. & N. Armstrong, do R.R. 2	Imp. 20th Century	17	19	9½	18	21	84½	4, 14, 15
A. McGarry, do R.R. 2	Banner.....	18½	12	10	19	22½	82	2, 4
J. S. Bell, do R.R. 2	Reg. Banner.....	17½	7	9½	19	21½	74½	2, 4

NOTE.—The figures in parenthesis at the top are maximum possible scores.

3 A.S.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.			Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
LANARK.—Continued.				(20)	(25)	(10)	(20)	(25)	(100)	
DRUMMOND AGR. SOCIETY.—Con.										
I. L. Wilson, Perth, R.R. 2	....	Reg. Banner	....	17	7	9	19 ¹ ₂₅	21 ¹ ₂₅	74	2, 14
J. M. Warren, Balderson	....	Banner	....	17	7	8	18	22	72	
Jno. Show, Perth, R.R. 2	....	Great Dane	....	17	6	8	19	21	71	2
J. & J. Ebbs, do R.R. 2	....	Banner	....	15	9	9	19	18	70	4, 2
J. H. Shaw, do R.R. 2	....	do	....	15	8	9	18	19	69	2, 4, 15
LEEDS.										
BROCKVILLE AGR. SOCIETY.										
Judge—J. D. McLennan, Lancaster, R.R. 1.										
M. F. Harton, Bellamys	....	....	....	20	24	9	18	23	94	
Geo. E. Jackson, Lyn	....	O. A. C. 72	....	18	24	9	18	21	90	
Jos. Hudson, do	....	Newmarket	....	18	23	9	18	21	89	
H. J. Willows, do	....	O. A. C. 72	....	18	22	8	18	22	88	
A. J. Bushfield, do	....	Newmarket	....	19	22	5	18	23	87	
J. W. Stewart, do	....	....	....	19	21	10	16	20	86	15
F. Bolin, do	....	Newmarket	....	19	22	8	16	20	85	4
V. Brown, do	....	do	....	19	20	8	15	22	84	
Jas. Neilson, do	....	O. A. C. 72	....	16	20	7	18	22	83	
A. C. Hardy, Brockville	....	Newmarket	....	17	20	5	18	22	82	11
D. Dack, Lyn	....	O. A. C. 72	....	18	20	7	18	18	81	15
J. S. Moore, Bellamys	....	....	....	15	24	5	15	21	80	
R. J. Parker, Brockville, R.R. 3	....	....	....	16	19	7	15	21	78	
J. Findon,	....	Tin Cap	....	16	19	5	15	19	74	
LANSDOWNE AGR. SOCIETY.										
Judge—J. D. McLennan, Lancaster, R.R. 1.										
W. H. Rath, Lansdowne	....	20th Century	....	19	25	9	20	23	96	
W. Landon, do	R.R. 2	Abundance	....	20	22	9	19	24	94	
B. Cook, do	R.R. 4	Mammoth Cluster	....	19	22	9	19	24	93	
W. H. Bradley, do	....	20th Century	....	16	23	9	19	22	89	
R. M. Heaslip, do	....	Banner	....	18	19	9	19	23	88	
Thos. Steacy, do	R.R. 2	do	....	19	20	7	18	23	87	10
R. Breckenridge, do	....	do	....	17 ¹ ₂₅	20	8	18	23	86 ¹ ₂₅	
R. E. Steacy, do	....	do	....	18	20	8	18	22	86	
O. W. Landon, do	....	Reg. Banner	....	16	22	8	18	21	85	
A. Cliff, do	....	O. A. C. 72	....	17	18	8	19	22	84	
Robt. Shields, do	....	Banner	....	18	18	8	17	22	83	
H. A. McNeely, do	....	O. A. C. 72	....	15	20	8	17	22	82	
W. H. O. Foley, Mallorytown, R.R. 1	....	Newmarket	....	19	22	7	10	22	80	1
R. W. Foley, Lansdowne, R.R. 3	....	Banner	....	18	20	8	12	21	79	
H. M. Gray, do	R.R. 2	O. A. C. 72	....	15	17	9	16	21	78	
Jos. Shields, do	....	Abundance	....	14	19	7	17	20	77	
R. W. Steacy, do	....	O. A. C. 72	....	16	12	9	18	21	76	2
F. J. Donevan, do	....	Banner	....	15	20	7	17	16	75	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
LEEDS.— <i>Continued.</i>		(20)	(25)	(10)	(20)	(25)	(100)	
LOMBARDY AGR. SOCIETY.								
<i>Judge—C. I. H. Jordison, Hybla, R.R. 1.</i>								
E. P. Kelly, Lombardy, R.R. 2	Banner.....	18	22	9½	19	21½	90	11, 14, 15
H. R. Covell, do R.R. 1	do	18	19	9	18	22	86	11, 4
F. Covell, do R.R. 1	do	15	23	8	17	21	84	4, 14
Jno. Hamer, do R.R. 1	O. A. C. 72.....	16½	19	7	20	21	83½	2, 14
H. Chalmers, Smith's Falls, R. R. 1	Banner.....	19	9	9½	20	23½	81	2, 10
Jno. McLean, Smith's Falls, R. R. 4	O. A. C. 72.....	19	6	9½	20	24	78½	2
D. Joynt, Lombardy	White Wave.....	15½	18	9	14	19	75½	11, 10, 14, 2
E. J. O'Meora, do	Banner.....	17½	8	9	18½	21	74	2, 4
E. W. Joynt, do R.R. 1	Great Dane.....	17	10	8½	17	21	73½	2, 14, 15
Wm. Miller, do R.R. 1	Banner.....	17½	7	9½	18	20	72	11, 2, 14, 10, 4
Jno. Duffield, do	do	14	9	8	19	21	71	2, 15, 10
LINCOLN.								
CLINTON AGR. SOCIETY.								
<i>Judge—F. J. Jackson, Meadowvale.</i>								
J. A. Lind, Beamsville, R.R. 1	O. A. C. 72.....	17½	23	9	19	22	90½	15
H. H. Tufford, do R.R. 1	do	17	23	9	19	22	90	
S. H. Culp, Vineland, R.R. 1	do	16	22	7½	19	22½	87	15, 14
J. J. Prudhomme, Beamsville	Silver Mine.....	15½	22½	7½	18	22½	86	15, 14
Jas. Crown, do R.R. 1	O. A. C. 72.....	16	21½	8	18	22	85½	15
C. H. Prudhomme, do	Silver Mine.....	15½	22	7½	18	22	85	15, 14
D. Ryckman, do	do	16	21½	7	18	22	84½	15
D. H. Moyer, Vineland, R.R. 1	O. A. C. 72.....	15½	21	8½	18	21	84	15
A. W. Culp, Beamsville, R.R. 1	do	15½	20½	8½	18	21	83½	15, 14
Aaron Culp, do R.R. 1	Banner.....	15	20½	8½	18	21	83	15, 10, 14
C. W. Culp, Vineland, R.R. 7	O. A. C. 72.....	13	23	9	18	19½	82½	15
S. H. Wismer, Campden	Mammoth Cluster	15	22	6	18	21	82	15, 14
W. E. Boughner, Beamsville	Scotch Chief.....	14½	21	7	17½	21½	81½	15, 14
A. D. Fleming, do	O. A. C. 72.....	15	20	7	18	21	81	15, 14
J. A. Book, do	Banner.....	14½	20	8½	18	19	80	15, 14
E. J. Miller, Smithville, R.R. 3	Silver Mine.....	14	20	8	18	19½	79½	15
J. A. Merritt, Beamsville, R.R. 1	O. A. C. 72.....	16	15	8	17½	21	77½	15
J. B. Parker, do R.R. 1	Ligowa.....	14½	15	7	18	20	74½	15, 10
A. E. Field Marshall, Beamsville	Green Mountain..	14½	18	5	18	17½	73	15, 14
MANITOULIN.								
GORE BAY AGR. SOCIETY.								
<i>Judge—John Tait, Iron Bridge.</i>								
H. Witty, Foxey	Sterling.....	20	24	10	20	25	99	15
E. A. Letts, Barrie Island	Daubeney.....	20	24	10	19	25	98	15
D. McLean, Gore Bay	O. A. C. 72.....	20	24	10	20	23	97	15
J. Vanmur, do	Derby.....	19	24	10	20	23	96	14

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Woods in competitors' fields.
MANITOULIN.— <i>Continued.</i>		(20)	(25)	(10)	(20)	(25)	(100)	
GORE BAY AGR. SOCIETY.— <i>Con.</i>								
Jno. Jennings, Barrie Island ...	Daubeney.....	19	23	10	20	23	95	15
Jno. Wilson, Gore Bay	do	19	23	10	18	24	94	15
N. Campbell, Foxey	Reg. Banner.....	19	23	8	20	23	93	15
R. W. Milligan, Gore Bay	Abundance.....	18	23	8	20	23	92	15
MIDDLESEX.								
CARADOC AGR. SOCIETY.								
<i>Judge—R. E. Mortimer, Honeywood.</i>								
D. Crawford & Sons, Strathroy, R.R. 1	O. A. C. 72.....	17	22	7	17	21	84	4
E. Wilton, Mount Brydges ...	do	15½	22	7½	18½	18	81½	
M. S. Leitch, Strathroy, R.R. 1.	do	17½	22	5	15	21½	81	14
Fk. Farrow, Mt. Brydges, R.R. 2	do	15½	21	8	19	17	80½	14, 15
D. Campbell, do R.R. 2	do	16	20	7½	18	17½	79	14, 15
Wm. Courtis, do R.R. 2	Banner.....	15½	22	6	18	17	78½	14
J. S. Walker, do R.R. 2	O. A. C. 72.....	15	21	5	18	15½	74½	14
A. Lamont & Sons, do R.R. 2	do	12½	20	6½	19	13	71	15
C. E. Bateman, do	Banner.....	14	20	7½	16	12½	70	14, 4
Arch. Graham, Strathroy, R.R. 1	do	15½	20	5	10	19½	70	14
Jno. McLean, Mt. Brydges, R.R. 2	O. A. C. 72.....	13½	18	8	18	12	69½	14, 15
DORCHESTER AGR. SOCIETY.								
<i>Judge—M. W. Saxsmith, Ridgeway.</i>								
S. Demaray, Mossley, R.R. 2...	O. A. C. 72.....	18½	24½	10	20	24	97	14
A. A. Irvin, Dorchester, R.R. 1.	Banner.....	19	24½	9½	19	23½	95½	
H. Matthews, Mossley, R.R. 2 ..	O. A. C. 72.....	19½	22½	10	19½	23½	95½	15
Chas. E. Connor, Dorchester	Abundance.....	19½	22	9½	19	24½	94½	15, 14
R. G. Boxall, Mossley, R.R. 2	O. A. C. 72.....	18½	22	9½	20	24½	94	14, 15
F. L. Atkins, do R.R. 2	do	16½	23½	10	20	22	92	14, 15
Thos. Cornish, do R.R. 2	do	17	20	9½	20	24	90½	15, 14
D. P. Cornish, do R.R. 2	do	19	17	10	20	24½	90½	15
G. F. Neely, Dorchester	do	17	20	9½	19½	24	90	15, 14
Chas. Hunt, do R.R. 1	Bumper King....	18	22½	9½	15	24½	89½	14, 15
W. Weatherell, Mossley, R.R. 2	O. A. C. 72.....	16	20	10	20	23	89	14, 15
F. I. George, do R.R. 2	do	14½	21	9	19	21	84½	14, 15
Lloyd Fenton, Dorchester, R.R. 3	White Wave.....	16	10	9	18	22	75	14, 15, 10
Jas. Weir, do R.R. 1	O. A. C. 72.....	19½	....	10	19	24	72½	2, 14, 15
A. E. Jackson, Mossley, R.R. 1..	do	12½	14	8	17	21	72½	
EAST MIDDLESEX AGR. SOCIETY.								
<i>Judge—A. Forster, Markham.</i>								
Jas. Murray, Wilton Grove, R.R. 1	O. A. C. 72.....	19½	24	9½	20	24	97	15
A. Cornish, do R.R. 1	do	19	24	9½	20	23½	96	15
J. H. Wheaton, Thorndale	do	18½	24	9	20	23½	95	15
Wm. Heuston, do	Amer. Banner....	18½	23½	9	20	23½	94½	14, 15

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	†Weeds in competitors' fields.
		(20)	(25)	(10)	(20)	(25)	(100)	
MIDDLESEX.— <i>Continued.</i>								
EAST MIDDLESEX AGR. SOCIETY.								
— <i>Continued.</i>								
J. W. Laidlaw, Wilton G've, R.R. 2	White Wave.....	18½	24	9½	19½	22½	94	15
J. B. Nichol, do R.R. 2	O. A. C. 72.....	17½	24½	9½	20	22	93½	
A. Irwin, Dorchester, R.R. 2	Banner.....	18	23½	9½	19½	22½	93	1, 15
A. Beattie, Wilton Grove, R.R. 1	O. A. C. 72.....	18	24	9	19½	22	92½	15
Wm. Bell, London, R.R. 6.....	Banner.....	18	20	9½	20	23	90½	1
Chas. Hunt, Dorchester, R.R. 1	Bumper King....	17½	21	9½	15	22½	85½	14, 15
Wm. Armour, do R.R. 1	Banner.....	19½	11	10	19	24½	84	1, 15
A. Armour, do R.R. 1	do	19½	10	10	19½	24½	83½	1, 14, 15
E. Vining, Belton, R.R. 1	O. A. C. 72.....	19	10	8½	19	24	80½	1
Geo. Riddle, Wilton Grove, R.R. 1	Banner.....	17½	10	9	20	22½	79	2, 15
LONDON TP. AGR. SOCIETY.								
<i>Judge—A. Forster, Markham.</i>								
W. W. Kerr, Denfield, R.R. 4	White Jewel.....	18	24	9½	19	22½	93	14, 15
Moir Bros., Ilderton, R.R. 3	Early Sensation..	16½	23	9½	19½	21½	90	10, 14, 15
A. C. Hodgkin, Denfield, R.R. 4	Banner.....	16	23	9½	19	21½	89	10, 14, 15
A. Ironside, Ettrick	White Jewel.....	14	23	9½	19	21½	87	14, 15
C. W. Hobbs, Denfield	O. A. C. 72.....	18½	10	9½	19½	23½	81	1, 10, 15, 14
Jno. Armitt, London, R.R. 3	do	18	10	9	20	23½	80½	1
Wm. Goddard, Ilderton	Banner.....	18	10	10	19	23	80	1, 15
W. R. Westlake, London, R. R. 2	O. A. C. 72.....	16½	12	9½	19	22	79	1, 15
Geo. A. Stewart, Denfield, R.R. 2	do	17½	10	9½	19½	21½	78	1, 2, 10, 14, 15
Geo. Long, Komoka	Early Abundance..	15	10	9	19½	21½	75	1, 14, 15
MCGILLIVRAY AGR. SOCIETY.								
<i>Judge—C. C. Rokeby, Port Rowan, R.R. 2.</i>								
E. Faulder, Ailsa Craig	O. A. C. 72.....	17	23½	9	19	21	89½	
J. J. Graham, do	do	17	22	8½	18½	22	88	14
Jno. Dixon, do R.R. 3	do	15½	23	8	19	21	86½	
A. Stewart & Sons, do R.R. 3	Banner.....	16½	22½	9	17	21	86	15
Ed. Dixon, do R.R. 3	O. A. C. 72.....	14½	23	8½	19	20½	85½	
W. L. Corbett, do R.R. 2	do	15½	21½	9	19	20	85	15
W. T. Amos, Parkhill	Banner.....	15½	21	9	16½	21	83	15
F. J. Neil, Ailsa Craig, R.R. 3	O. A. C. 72.....	16	19	8½	17½	21½	82½	15, 4
J. J. Amos, Parkhill, R.R. 8	Banner.....	17	18½	8½	16½	21½	82	1, 4
J. H. Amos, Ailsa Craig, R.R. 3	New Sensation..	15½	21	9	16	20	81½	15, 4
Jas. Darling, Parkhill, R.R. 8	Imp. Banner....	14½	20½	9	15½	20½	80	15
E. Darling, Clandeboye, R.R. 1	Banner.....	16½	9	9	17	21½	73	1, 15
Gibson Bros., Ailsa Craig, R.R. 3	do	16½	8	9½	17	20½	71½	2, 4, 15
G. A. Lewis, Ailsa Craig, R.R. 2	Prince Royal....	16	9	9	14	20½	68½	2, 15
NORTH MIDDLESEX AGR. SOCIETY.								
<i>Judge—C. C. Rokeby, Port Rowan, R.R. 2.</i>								
J. S. Tarish, Ailsa Craig	O. A. C. 72.....	18	24	9	19½	22½	93	
Jas. McFarlane, do	do	17½	23	8½	19½	22½	91	14
Geo. Grieve, Clandeboye	do	17½	23	7½	18	22	88	15

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.			Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
MIDDLESEX.— <i>Continued.</i>				(20)	(25)	(10)	(20)	(25)	(100)	
NORTH MIDDLESEX AGR. SOCIETY.										
— <i>Continued.</i>										
D. MacArthur, Ailsa Craig ...			Banner.....	17	21	9	19	21½	87½	15, 10
A. E. Rosser, do			O. A. C. 72.....	16½	23½	9	16½	21½	87	
Hughes Bros., Denfield			Abundance.....	17½	21	9½	17	21½	86½	2
A. K. Stewart, Parkhill			Banner.....	16½	23	8	16½	22	86	2
O'Neil Bros., Clandeboye			O. A. C. 72.....	17½	20	9	17	22	85½	4
Alex. McLean, Parkhill			do	18	22	8½	14	22	84½	2
P. Robinson, Ailsa Craig			Czar.....	17	21	8½	16½	21½	84½	2
W. Dixon, do R.R. 3			N. Industrial.....	15½	23	9	16	20½	84	
Jas. Shipley, do			Wyatt.....	17	18	9½	17	22	83½	9, 10, 15
A. Shipley, Clandeboye			O. A. C. 72.....	16½	18	9	16½	21	81	10, 15
G. Grieve, Denfield			Wyatt.....	15½	20	9	16	20	80½	1, 15
N. McAlpine, Ailsa Craig			Irish.....	16½	21	9	10	20½	77	4, 15
Ed. Hughes, do			O. A. C. 72.....	16½	10	7½	19	21	74	1
Jno. Oliver, Ilderton			Wyatt.....	17	10	9	17	20½	73½	1
C. Lynn, Clandeboye			Abundance.....	16½	7	9	16½	22½	71½	1, 4, 15
Leitch Bros., Ailsa Craig			Banner.....	17	9	8½	16	20½	71	1, 15
W. Glenn, do			Wyatt.....	15	9	8½	16	20	68½	1, 15
STRATHROY AGR. SOCIETY.										
Judge—R. E. Mortimer, Honeywood.										
W. B. Ferguson, Strathroy, R.R. 2			O. A. C. 72.....	16½	22	7½	19½	21½	87	15
D. M. McNeil, do R.R. 1			do	17½	21	7	19	21½	86	
D. Leitch, Mt. Brydges, R.R. 2			do	17½	22	5	19	21½	85	15
W. H. Oakes, Strathroy, R.R. 1			Banner.....	17	21	7½	19	20	84½	
Angus Limon, do R.R. 1			O. A. C. 72.....	16	21	7½	17½	21½	83½	15
W. L. Toohill, do R.R. 3			Reg. Banner.....	17	18	8	17½	21½	82	15
Jas. Ogg & Son, do R.R. 2			Imp. Banner.....	16	20	7½	19	18½	81	14, 15
R. W. Bogue, do R.R. 7			O. A. C. 72.....	17½	20	4	17½	21	80	4
Jas. Sabine, do			do	14	21	4	18	17½	74½	
D. Limon & Son, do R.R. 2			Imp. Banner.....	13½	20	7	19	14½	74	14
A. B. Douglas, do R.R. 5			O. A. C. 72.....	13½	21	5	16	16	71½	14, 15
Hugh Turner, do R.R. 1			Daubeney.....	15½	18	6½	12	15½	67½	
WESTMINSTER AGR. SOCIETY.										
Judge—M. W. Sexsmith, Ridgeway.										
W. C. Pack, Lambeth			O. A. C. 72.....	17½	24	9½	19½	24½	95½	14
M. V. Fisher, Wilton Grove, R.R. 2			do	18	21	9½	20	24½	93½	
H. Bennett, Glanworth			do	18	20	9	20	24	91	14, 15
F. Bodkins, Wilton Grove, R.R. 2			do	18½	22	9	20	21½	90½	14, 15
W. E. Wright & Son, Glanworth			do	17½	20	9	20	23½	89½	14, 15
O. D. Griffith, Lambeth, R.R. 3.			do	15	22	7½	20	25	89½	14, 15
Robt. McEwen, London, R.R. 4.			Banner.....	19	20	9½	16	24	88½	14, 15, 3
G. Campbell, Lambeth, R.R. 3..			O. A. C. 72.....	17½	20	7	19	24½	88	14, 15, 10
W. H. Shore, Glanworth, R.R. 2			White Jewel.....	16½	18	9	18	22½	84	10, 14, 15
Wm. Tanton, Lambeth, R.R. 2..			Amer. Banner....	18	20	9½	14	22½	83½	14, 15

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.			Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	Yield and quality of grain.	Totals of scores.	*Weeds in competitors' fields.
MUSKOKA.				(20)	(25)	(10)	(20)	(25)	(100)	
GRAVENHURST AND MUSKOKA AGR. SOCIETY.										
<i>Judge—J. A. Cameron, Maple.</i>										
B. Laycock, Gravenhurst			S. Hero.....	17	24	9	19	23	92	15
J. Groh, do	West.		Garton's Reg. Abundance....	17	23	9	19	23	91	15
G. W. Miller, do			O. A. C. 72.....	17	22	9	19	23½	90½	4
C. E. Laycock, do			Gar. Abundance..	17	24	7	19	23	90	8
S. Polmateer, do			do	16½	23	7½	19	23½	89½	10
Robt. McKay, do			Amer. Banner....	17	23	8	18	23	89	10
D. Morrison, Reay			do	17	23	8	19	21	88	
W. W. Morrison, do			Banner.....	16	22	9	18	22	87	1, 15
Geo. York, Gravenhurst			O. A. C. 72.....	17	23	6	18	22	86	3
R. G. Young, do			Gar. Abundance..	16	22	7	18	22	85	4
Geo. Jones, do			do	16	21	7½	18	22	84½	11
W. H. Tincombe, do			do	14	22	8	18	22	84	4, 10
Josh. Short, do			Sterling.....	15	21	8	18½	21	83½	2
E. Hammond, do			O. A. C. 72.....	15	22	7	18	21	83	8, 5
Jno. Galbraith, Reay			Banner.....	14½	20½	8	18	21½	82½	2
T. C. McNeice, do			do	15	21	8	18	20	82	2, 3
W. Ruttan, Gravenhurst			Rennie's Early Yelder.....	15	20	8	18	20½	81½	4, 10
MEDORA AND WOOD AGR. SOCIETY.										
<i>Judge—T. Hall, Brooklin.</i>										
R. D. Riley, Milford Bay			O. A. C. 72.....	18	20	9½	20	21	88½	10, 13
T. W. Knight, Brackenrig			do	15½	24	8	17	22	86½	15
W. R. Mason, Bardsville			Imp. Scotch.....	16½	23	9½	18	19	86	4, 15
H. J. Foulkes, Brackenrig			Reg. Banner.....	17½	21	8	18	21	85½	10
W. A. Pooler, Pt. Kaye			20th Century....	17	19	9	19	20	84	4, 14, 10
R. C. Harris, Jr., Port Carling .....			.....	13½	21	9	19	20½	83	14
Thos. Aikens, do			Reg. Banner.....	16	18	9	17½	22	82½	4
C. H. Davidson, Brackenrig			Imp. Scotch.....	15	22	9	17	19	82	15
W. Chambers, Bardsville			do	14½	22	8	18	19½	82	13, 14
W. P. Green, do			Reg. Banner.....	16½	18	8	17½	21½	81½	14, 15
R. C. Buttler, Point Kaye			20th Century....	14	18	9½	19	19½	80	10, 14
D. G. Fraser, Brackenrig			Imp. Scotch.....	15½	17	8	19	20	79½	4, 14, 15
Alex. Ennis, Port Carling .....			.....	13	21	9	18	17	78	14
H. Riley, Milford Bay .....			.....	14	18	9	18	17	76	10
Hy. Martin, Port Carling			Abundance.....	11½	19	7	18	19	74½	
Jas. Stephens, do			Siberian.....	14½	14	8	19	18½	74	1, 4, 14
NORTH MUSKOKA AGR. SOCIETY.										
<i>Judge—Geo. W. Glover, Nottawa.</i>										
Jos. Bradley, Allansville			O. A. C. 72.....	19½	21½	9½	20	25	95½	15, 2
M. Markel, Hunstville			do	18½	23	9½	19½	24	94½	15
T. B. Hill, Hillside			Amer. Banner....	17½	24½	9	19	23½	93½	
Geo. Richards, Huntsville .....			.....	14	24½	9½	19½	21½	89	14
W. M. Sinclair, do			Banner.....	11½	25	10	19½	21	87	
C. A. Brown, do			Amer. Banner....	11½	24½	9½	20	20½	86	10

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Woods in competitors' fields.
		(20)	(25)	(10)	(20)	(25)	(100)	
MUSKOKA.—<i>Con.</i>								
NORTH MUSKOKA AGR. SOCIETY.								
— <i>Continued.</i>								
C. Robinson, Ravenscliffe	Siberian.....	14	24½	10	15	21½	85	
Geo. McKenny, Melissa	Banner.....	12	21½	9½	19½	20½	83	10
A. Cochrane, Ravenscliffe	do	13½	24	9½	10	21½	78½	
S. Martin, do	Siberian.....	12	20	9½	15	21	77½	4, 10, 11
Wm. Bray, Huntsville	North West.....	14½	10	9½	19½	22½	76	2
Jno. Turnbull, do .....	.....	12½	24½	9	.....	21	67	
G. Holingshead, do	Dodd's W. Cluster	12½	24½	8½	.....	21	66½	
Wm. Knott, do .....	.....	13½	19	9	.....	22½	64	15, 2
SOUTH MUSKOKA AGR. SOCIETY.								
<i>Judge—Jas. A. Cameron, Weston.</i>								
P. C. Kaye, Bracebridge	O. A. C. 72.....	17	24	9	20	23	93	
H. L. Goltz, Bardsville	Imp. Scotch.....	16	24	9	19	23	91	
Wm. Naismith, Falkenburg Sta.	Early Yielder....	17½	24	8½	18	21½	89½	15
J. B. Kaye, Bracebridge	Imp. Scotch.....	17	22	9	18	23	89	1
Thos. Bruce, do	do	17	23	7½	18	23	88½	8
Wm. Taylor, do	Tarter King.....	17	23	8	18	21	87	12
Geo. Yearley, Falkenburg	Imp. Scotch.....	15½	23	8	19	21	86½	14
R. Goltz, Bardsville	do	16½	22	7½	18	22	86	15, 12
Alex. Barron, Bracebridge	Reg. Banner.....	16	23	8	18	20½	85½	15
G. H. Armstrong, do	Curzon.....	15	21	9	18	22	85	2, 4, 15
H. Richards, do	Imp. Scotch.....	16	20	8	19	20	83	3, 4
A. J. Goltz, Bardsville	O. A. C. 72.....	15	20	8	17	22	82	14
Wm. Ball, Sr., Bracebridge	Abundance.....	15½	20	8	17	21	81½	1
H. B. Buckerfield, do	20th Century.....	13	23	8	19	18	81	1
J. J. Beaumont & Sons, Brace- bridge	Siberian.....	13	21	7	18	19	78	2
Wm. Barron, Bracebridge	Gar. Abundance..	13	21	7	16	20	77	15
STEPHENSON AND WATT AGR. SOCIETY.								
<i>Judge—G. W. Glover, Nottawa.</i>								
W. J. Hamilton, Raymond	O. A. C. 72.....	18½	21½	10	20	24	94	4
N. Hammell, do	Reg. Banner.....	15½	25	9½	19½	23	92½	
Geo. Wingfield, Utterson	O. A. C. 72.....	13½	25	10	20	21½	90	
Leslie Bunn, Ullswater	do	13½	24½	10	20	21½	89½	
H. Putnam, do	do	15½	21½	10	19½	22½	89	4
W. F. Somerset, Port Sydney ..	do	13½	24½	9	20	21½	88½	
Jno. McNicol, Allansville	Amer. Banner....	15½	21½	9	19½	22½	88	10, 2, 14
Jas. McKenzie, Raymond	Reg. Banner.....	13	24	9½	19½	21½	87½	
Geo. Hammell, do	do	15½	19½	9½	19½	23	87	4
Jno. Webber, do	do	16	18½	9½	20	23	87	10, 14, 4
H. Creasor, Ullswater	Imp. Scotch.....	14	21½	10	19	22	86½	4, 2
Thos. Graham, Raymond	Reg. Banner.....	16	18½	9½	19½	22½	86	4, 2, 15
W. Hamilton, do	20th Century....	12	24	9½	19½	21	86	4
Jno. Simpson, Parkersville	Reg. Banner.....	11½	25	9½	19½	20½	86	
A. J. Hughes, Port Sydney	Banner.....	12	25	8½	19½	20½	85½	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
MUSKOKA.—<i>Con.</i>		(20)	(25)	(10)	(20)	(25)	(100)	
STEPHENSON AND WATT AGR. SOCIETY.— <i>Con.</i>								
C. Bunn, Ullswater	Sensation.....	11	24½	9½	20	20½	85½	
F. R. Bray, Utterson .....	.....	13	21½	9½	20	21	85	10
Thos. Hammell, Raymond	Reg. Am. Banner.	12	22	9½	19½	20½	83½	4
Chas. Nichol, Port Sydney	do	10	24½	9½	19½	19½	83	15
A. Kay, do	O. A. C. 72.....	11½	21½	9½	19	20½	82	10, 15
W. J. Hammell, Raymond	Reg. Banner.....	11½	18½	9½	19½	20½	79½	4, 10
J. M. Patterson, Utterson	20th Century.....	12	19	9½	18	20½	79	10
NIPISSING.								
BONFIELD AGR. SOCIETY.								
<i>Judge—J. B. Kaye, Bracebridge.</i>								
Geo. Proulx, Bonfield	O. A. C. 72.....	17½	22	9	19	22	89½	14
H. Boissonneault, Great Desert.	Banner.....	17½	22	8	17	22	86½	15
Jno. Plante, Bonfield	Mammoth Cluster	17	20	9	16	21	83	15
A. Boulanger, Great Desert ....	.....	16½	20	9	16	20½	82	15, 17
Fred. Boulanger, do	Mammoth Cluster	17	20	8½	15	20	80½	
Geo. Quinn, do	do	14½	19	8	15	19½	76	17
E. Beaulieu, Bonfield .....	.....	15	18	8	14	19	74	17, 15
Jos. Dion, Great Desert .....	.....	15½	16	8½	14	18½	72½	15, 14
O. Foisy, Bonfield .....	.....	13	16	8	16	18	71	4, 15
A. Boissonneault, Great Desert.	Banner.....	13	17	8	14	17	59	15
VERNER AGR. SOCIETY.								
<i>Judge—J. B. Kaye, Bracebridge.</i>								
Alfred Limoges, Verner	O. A. C. 72.....	18	24	9½	19	22	92½	
J. B. Leach, do	do	17½	24	9	19	22	91½	
D. Filiatrault, do	do	17	22	9	20	21½	89½	15
A. Gagnon, do	Northland.....	17½	22	9	16	21	85½	
D. Lacasse, do	Banner.....	16½	20	8	18	21	83½	15
J. L. Sylvestre, Lavigne .....	.....	16	20	9	17	20	82	17
T. Filiatrault, Verner	Banner.....	15½	21	8	18	19	81½	15
A. Gagnon, do	do	15	20	9	15	21	80	15
S. Lawrence, do .....	.....	15	20	7	18	19	79	14, 15
A. Sylvestre, do	Banner.....	15½	19	9	15	20	78½	15, 14
Jos. Aubin, do	do	14	20	9	15	19½	77½	15
NORFOLK.								
NORFOLK AGR. SOCIETY.								
<i>Judge—A. Greer, Mansfield, R.R. 1</i>								
W. H. Mason, Waterford	O. A. C. 72.....	18	23	9	18	22½	90½	15
W. M. Woodley, do	do	18	23	9	18	21½	89½	
Geo. Erwin, Simcoe, R.R. 4	Banner.....	18	21	8	18	23	88	
E. W. Hyde, do R.R. 4....	do	17	22	7	18	20	84	15

NOTE.—The figures in parenthesis at the top are maximum possible scores.

4 A.S.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
		(20)	(25)	(10)	(20)	(25)	(100)	
NORFOLK.— <i>Continued.</i>								
NORFOLK AGR. SOCIETY.— <i>Con.</i>								
B. Wilson, Wilsonville	O. A. C. 72.....	16½	21	6	18	22	83½	14
Earl Mott, Simcoe, R.R. 4....	do	15½	21	8	18	20½	83	14, 15
B. Hall, do R.R. 2....	Banner.....	16½	18	7	18	21	80½	15
Nelson Hall, Villa Nova, R.R. 1	O. A. C. 72.....	16	18	8	17	21	80	10, 15, 14
J. Austin & Son, Woodhouse, R. R. 3	do	14½	18	7	18	20	77½	10, 15
E. E. Murphy, N. Walsingham, R.R. 1	Banner.....	14	19	7	17	18½	75½	14, 15, 10
W. E. Mason, Simcoe, R.R. 4 ..	do	15	17	6	16	20	74	10, 15
NORTHUMBERLAND.								
SEYMOUR AGR. SOCIETY.								
<i>Judge—D. English, Burketon, R.R. 3</i>								
Wm. Rannie, Campbellford, R.R. 3	O. A. C. 72.....	20	18	8	18	23	87	15
Wm. Locke, do	do	16	20	8	18	22	84	15, 14
E. C. West, do	Siberian.....	16	20	8	17	21	82	15
H. Forestell, do R.R. 1	O. A. C. 72.....	16	20	5	18	21	80	15, 14
Wm. J. Ross, Myersburg	do	18½	15	8	18	20	79½	15, 14, 10
Chas. Bonnycastle, Campbellford, R.R. 1	do	15	18	8	18	20	79	15
A. Stephens, Campbellford	Ligowa.....	14	20	8	16	20	78	14, 15
Thos. Dunham, do	O. A. C. 72.....	12½	17	7	18	21	75½	15
Jos. Hopps, do	Banner.....	16	15	8	15	20	74	10, 14, 15
Chas. Bedford, do	Sheffield Standard	12½	14	7	16	18	67½	10, 15
A. Barnum, do R.R. 2	do	12½	14	8	16	16	66½	10, 14
H. Third, do R.R. 2	Ligowa.....	13	12	8	16	17	66	10, 14, 15
Wm. Petherick, Jr., do R.R. 2	Tartar King.....	13	14	7	15	17	66	15, 14
H. Clark, do R.R. 4	Banner.....	12½	14	7	15	17	65½	15
Mrs. M. Dunham, do R.R. 4	Siberian.....	11½	14	7	16	16	64½	10, 15, 14
WOOLER AGR. SOCIETY.								
<i>*Judge—S. G. Gourlay, Kinburn.</i>								
R. E. McMaster, Woolder	O. A. C. 72.....	18	22	9	19	21½	89½	
D. Teal, do	do	18	21	9	17	21	86	
H. Wessels, Trenton, R.R.	Abundance.....	17½	22	8	16	22	85½	
J. A. Ruttan, Woolder	Ligowa.....	17	21	9	17	21	85	
R. H. Plumpton, do	Abundance.....	16	21	8	17	21	83	10, 15
O. L. Teal, do	O. A. C. 72.....	17	17	8	15	21	78	2
E. M. Wessel, do	do	14½	10	9	17	19	69½	2
W. A. McColl, do	Irish Victor.....	12	12	8	16	19	67	1, 2
L. C. McColl, do	Banner.....	13	10	8	12	19	62	2, 10, 4

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores	‡Weeds in competitors' fields.
ONTARIO.		(20)	(25)	(10)	(20)	(25)	(100)	
BEAVERTON AGR. SOCIETY.								
<i>Judge—Robt. J. Hall, Shelburne, R.R. 2.</i>								
F. W. Rilance, Beaverton, R.R. 2	Reg. Am. Banner.	18	22	8	19	21	88	1
E. McCuaig, Gamebridge	Sterling.....	17	22	8	17	22	86	
R. W. McTaggart, Beaverton, R.R. 1	O. A. C. 72.....	15	23	7	15	21	81	
A. J. Burton, Beaverton, R.R. 2	Bumper King....	16	20	7	16½	20	79½	2
J. Harrison, do R.R. 2	Reg. Banner.....	16	18	8	18	19	79	1
G. C. Tisdale, do	Abundance.....	16	12	8	18	22	76	
Dunrobin Farms, do	O. A. C. 72.....	17	12	9	16	21	75	1
Robt. Ross, do R.R. 1	Amer. Banner....	16	12	8	16	21	73	4
Jno. Westlake, do	O. A. C. 72.....	14	12	7	17	21	71	1, 2
SCOTT AGR. SOCIETY.								
<i>Judge—R. J. Hall, Shelburne, R.R. 2.</i>								
Jno. Miller, Sunderland	O. A. C. 72.....	18	24	8	18	23	91	
Thos. Sellers, Zephyr	Abundance.....	17	25	8	19	21	90	
Wm. Risebrough, Sandford	Banner.....	16	22	8	20	22	88	
E. O. Moore, Uxbridge, R.R. 1..	do	16	23	9	17	22	87	4
F. Feasby, do R.R. 1..	O. A. C. 72.....	17	23	8	16	22	86	
G. R. A. Miller, Sunderland ..	Abundance.....	15	23½	8	15½	19½	81½	
G. E. Weller, Zephyr	Banner.....	16	20	8	16	21	81	4
J. H. Lockie, do	Abundance.....	14	23½	6	18	19	80½	
F. Oldham, Mt. Albert	Bumper King....	14	24	7	15	20	80	
W. J. Rynard, Zephyr	O. A. C. 72.....	13	23	6	17½	20	79½	
J. H. G. Miller, Vallentyne ...	Imp. Abundance..	14	22	6	15	22	79	
T. H. Oliver, Uxbridge, R.R. 1..	O. A. C. 72.....	15	16	7	17	22	77	1
W. Bain, Zephyr	do	16	16	7	16	21	76	1, 4
F. Walker, do	Abundance.....	14	15	3	18	20	70	11
OXFORD.								
EAST MISSOURI AGR. SOCIETY.								
<i>Judge—Jas. McNeil, Maple.</i>								
A. Whetstone, Lakeside, R.R. 2	Mammoth Cluster	17½	24	9	18	22½	91	
D. Quinn, Thamesford	Banner.....	17½	22	8½	19	23	90	14
U. I. Hogg, do R.R. 2..	O. A. C. 72.....	18	20	8½	20	22	88½	2
G. R. Mathieson, Harrington ..	Yel. Russian....	15½	22	8	19	20½	85	15
Jno. Stevenson, Lakeside, R.R. 3	do	17	20	8	17	22½	84½	15
Jno. Bradshaw, Thamesford ...	O. A. C. 72.....	16½	21	7½	19	20	84	14
J. A. Calder, Lakeside, R.R. 2..	do	15½	19½	8	18	22	83	15, 4
Henry Snell, St. Mary's, R.R. 2	Imp. Banner.....	16	21	7½	17	21	82½	15
P. H. Harris, Lakeside, R.R. 2	O. A. C. 72.....	16½	20	7½	17	20½	81½	15, 14
W. H. Mede, do	do	17	16	8	18	21½	80½	2
Mercer Bros., Thamesford	do	15	20	7	20	18	80	15

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	Yield and quality of grain.	Totals of scores.	!Weeds in competitors' fields.
OXFORD.— <i>Continued.</i>		(20)	(25)	(10)	(20)	(25)	(100)	
EAST NISSOURI AGR. SOCIETY.								
— <i>Continued.</i>								
J. F. Day, Thamesford, R.R. 1	O. A. C. 72.....	15½	19	7	19½	18	79	15,14
Robt. Gregory, Lakeside	Rennie's Extra Early.....	15½	20	7	16	19	77½	14,15
J. C. Henderson, do R.R. 2	O. A. C. 72.....	15	15	7	18	20	75	4,14,15
C. B. Mitchell, do	Rennie's Early...	13½	17	6½	18	17½	72½	15
INGERSOLL, N. AND W. OXFORD AGR. SOCIETY.								
<i>Judge—A. V. Mitchener, O. A. C., Guelph.</i>								
T. B. Way, Ingersoll	O. A. C. 72.....	19½	25	8½	19	23	95	
C. G. Holmes, do R.R. 1....	do	19½	22½	9	18½	25	94½	15,10
W. S. Harris, Mt. Elgin, R.R. 2	St. Boniface.....	17½	24	8	18	24	91½	15
H. W. Wilson, Ingersoll, R.R. 4	Ligowa.....	17½	23	9	17½	24	91	15
L. McNiven, do R.R. 4	20th Century.....	17	22	8½	19	24	90½	15,11
F. J. Way, do R.R. 5	O. A. C. 72.....	17½	23½	7	18½	23½	90	15
R. W. Clark, do R.R. 1	do	18	23½	4	20	24	89½	
E. J. Heeney, do R.R. 2	Banner.....	19½	17	8	19	25	88½	15
D. R. Wilson, do R.R. 4	Ligowa.....	17½	24	8	16	23	88½	15
G. H. Tait, do R.R. 5	Banner.....	18½	23	6	16	24½	88	15
A. D. Robinson, do R.R. 4	do	17½	23	6½	17	24	88	15
Nelson Wilson, do R.R. 4	20th Century.....	16	23	8	18½	21	86½	15
A. J. Batten, Beachville, R.R. 1	Banner.....	15	22	8	17½	20½	83	
R. Sage, do R.R. 1	W. Jewel.....	19	17	8	14	24½	82½	15
R. P. Metherell, Ingersoll, R.R. 4	do	19	21	8	10	24	82	10,15
R. A. Embury, do R.R. 4	Banner.....	16½	18	5	14	22	75½	15,2
TILLSONBURG AND DEREHAM AGR. SOCIETY.								
<i>Judge—M. M. Hunter, Onondaga.</i>								
L. Feuster, Tillsonburg, R.R. 3	O. A. C. 72.....	17½	22½	9	19	25	93	15,10
J. D. McAlpine, do R.R. 3	W Cluster.....	18	22	9½	18½	24	92	15
A. Turnbull, Ostrander, R.R. 1..	W. Jewel.....	17	23	9½	18	24	91½	15
Geo. Smith, Brownsville	Abundance.....	19	19	10	19	24	91	15
E. A. Whaley, do	O. A. C. 72.....	18	18	10	19½	24½	90	15
C. Hawkins, do	Mammoth Cluster	17½	20	10	18	24	89½	2
O. H. Pettman, Tillsonburg, R.R.3	Green Mountain..	19	17	10	19	24	89	15
Jno. H. Smith, do R.R.3	Abundance.....	15½	21	9	18½	24	88	10,15
T. R. Langrill, Ostrander	Early Yields....	16½	5	10	18	23½	73	15,2,1
J. T. Ferguson, Tillsonburg, R.R.3	Scotch Tartar....	13½	18	9½	16	22½	79½	15,14
WEST ZORRA AND EMBRO AGR. SOCIETY.								
<i>Judge—M. M. Hunter, Onondaga.</i>								
R. H. Marshall, Embro, R.R. 6	O. A. C. 72.....	18½	24½	9	20	24	96	
Arch. Manson, do R.R. 1	Banner.....	18½	24	9	19	24	94½	15

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.			Name of variety.		*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	†Weeds in competitors' fields.
OXFORD.— <i>Continued.</i>					(20)	(25)	(10)	(20)	(25)	(100)	
WEST ZORRA AND EMBRO AGR. SOCIETY.— <i>Continued.</i>											
Jno. A. McKay, Embro, R.R. 1			O. A. C. 72.....		18 $\frac{1}{2}$	22 $\frac{1}{2}$	9	19	25	94	15
A. S. McDonald, Woodstock, R. 3			do		17 $\frac{3}{4}$	24	9	19	24	93 $\frac{3}{4}$	2
E. Meadows, Embro, R.R. 1			E. Newmarket....		18 $\frac{1}{4}$	24	9	18	24	93 $\frac{1}{4}$	15
Geo. Smith, do R.R. 3			Banner.....		17 $\frac{1}{2}$	24	9	19	23 $\frac{1}{2}$	93	
R. & G. Matheson, do R.R. 3			do		17 $\frac{1}{2}$	23	8	19	23 $\frac{1}{2}$	91	15
R. W. Huggard, do R.R. 4			O. A. C. 72.....		16	22	8 $\frac{1}{2}$	20	23 $\frac{1}{2}$	90	15
Alex. Smith, do R.R. 5			do		17 $\frac{1}{2}$	22	9	18 $\frac{1}{4}$	22 $\frac{1}{2}$	89 $\frac{1}{4}$	15, 14
H. McCorquodale, do R.R. 4			Early Wisconsin.		18	22	8	18	23	89	15, 14
B. Smith, do R.R. 1			Banner.....		17	22	9	18 $\frac{1}{4}$	22 $\frac{1}{2}$	88 $\frac{3}{4}$	
D. Clark, do R.R. 5			O. A. C. 72.....		16 $\frac{1}{2}$	22	8	19	23	88 $\frac{1}{2}$	15, 2
W. R. Munro, do			do		16	22	9	19	22 $\frac{1}{4}$	88 $\frac{1}{4}$	15
A. & J. Matheson, do			Banner.....		16	23	8	19	22	88	15
Jno. Day, do R.R. 4			Sterling.....		16	22	8	19	22 $\frac{3}{4}$	87 $\frac{3}{4}$	15, 14
E. Ward, do			O. A. C. 72.....		17	20	9	19	22 $\frac{1}{4}$	87 $\frac{1}{4}$	15, 14
Wm. McCorquodale, do R.R. 3			Banner.....		17	22	8	18	22	87	15
H. A. Millard, do R.R. 1			W. Wonder.....		16	22	8	18	22	86	15
A. Kennedy, do			O. A. C. 72.....		16	20	8	18	22 $\frac{1}{2}$	84 $\frac{1}{2}$	15, 4
Glendenning Bros., do R.R. 3			do		13	22	8	19	22	84	15
Jno. M. Ross, do R.R. 1			Lincoln.....		17	20	8	16	21	82	15
Robt. Kennedy, do			Banner.....		16	15	9	18	23	81	10
R. M. Ross, do			Lincoln.....		13	20	8	18	20 $\frac{1}{2}$	79 $\frac{1}{2}$	14, 15
PARRY SOUND.											
ARMOUR, RYERSON AND BURK'S FALLS AGR. SOCIETY.											
<i>Judge—D. McClure, Norval, R.R. 2.</i>											
I. T. Smith, Sterling Falls			Early Yelder....		16	20	8	18	20 $\frac{1}{2}$	82 $\frac{1}{2}$	15
Jno. Tilson, Burk's Falls			O. A. C. 72.....		16	20	8	17	21	82	15, 13, 10
A. W. Partridge, do			Reg Banner.....		15	18	8	18	21	80	15, 13, 10
Jos. Bell, do			W. Marble.....		16	18	7	17	21	79	15, 13
S. Langford, Midlothian			Mammoth Cluster		13 $\frac{1}{2}$	15	7	17	18 $\frac{1}{2}$	71	15, 17
D. Simpson, do			do		10 $\frac{1}{2}$	16	6	16	18	66 $\frac{1}{2}$	15, 17, 10
Hy. Doherty, do			do		13	14	7	15	17	66	15, 10
C. Inch, Burk's Falls			O. A. C. 72.....		11	12	6	15	15	59	11, 4, 15, 10
Jas. Webber, do			Reg. Banner.....		13	10	7	10	15	55	1, 15, 10, 17
CHRISTIE AGR. SOCIETY.											
<i>Judge—J. D. McKenna, Loretto.</i>											
John Lawson, Maple Lake Stn.			Banner.....		15	24	9	18	22	88	15
W. H. Burns, Orrville			O. A. C. 72.....		17	20	9	19	22	87	10, 14
Jos. Hannon, do			Banner.....		13	24	7	17	20	81	15
G. C. Flumerfelt, do			do		16	20	7	14	21	78	15
D. Sword, Maple Lake Station.			do		16	16	9	15	21	77	4, 14
J. A. Morrison, do			do		12	20	8	17	19	76	
H. Healey, Orrville			O. A. C. 72.....		13	22	8	12	20	75	15

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
PARRY SOUND.— <i>Continued.</i>		(20)	(25)	(10)	(20)	(25)	(100)	
CHRISTIE AGR. SOCIETY.— <i>Con.</i>								
Jas. White, Orrville	20th Century.....	15	14	9	14	22	74	4,15
C. A. Close, Maple Lake Station	White Wave.....	16	10	8	18	21	73	15
F. E. Forbes, Orrville	Gar. Abundance..	14	19	6	13	17	69	15
Jno. Healey, do	20th Century.....	13	18	6	12	19	68	15,14
A. E. Healey, do	Early Yelder....	13	12	6	15	18	64	1,15
LORING AGR. SOCIETY.								
<i>Judge—W. H. Davis, Ivy, R.R. 7.</i>								
Jas. S. Bain, Loring	W. Wave.....	18	22	9	19	22	90	
J. R. Bain, do	do	16	21	7	16	20	80	14
Jno. S. Bain, do	do	15	17	7	14	19	72	15,4
H. Bain, do	do	14½	14	7	16	20	71½	15,2
D. W. Sinclair, do	Sterling.....	15	15	8	14½	18½	71	15,4
H. H. Haggart, do	Banner.....	14	14	8	16	18	70	15,14
D. Smith, do	White Wave.....	14½	16	7	14	18	69½	15,10
Rich. Yeo, do	do	14	14	6	18	17	69	15,10
J. H. Bain, do	do	13	16	9	13	18	69	15
W. Clapperton, do	Banner.....	13½	15	7	15	18	68½	14
Jno. Haggart, do	do	14	14	7	15	18	68	15,10
Chas. Simms, do	do	13	10	9	14	18	64	15,2,4
Wm. Lee, do	do	12	14	6	14	16	62	15,14
MACHAR AGR. SOCIETY.								
<i>Judge—J. N. Sorley, Ottawa, R.R. 1.</i>								
T. H. Quirt, Midford	O. A. C. 72.....	16	23½	8½	19	19	86	
M. J. Unger, S. River	Mammoth Cluster	18	23	6½	10	21½	79	15
J. S. Cole, do	O. A. C. 72.....	16	13	9	18	20½	76½	15,1,11
Robt. Carter, do	W. Cluster.....	18	20	6½	10	21½	76	10
T. Bottomley, do	Sterling.....	15	23	7	13½	17	75½	15
A. McKee, do R.R. 1..	Mammoth Cluster	15½	22	6	10	19	72½	15
A. R. Hearn, do	O. A. C. 72.....	14½	17	7	15	18	71½	15
Jos. McGirr, do	Mammoth Cluster	17	10	7½	17	19½	71	2
Alex. Bow, do	Amer. Banner....	13½	23	5½	15	13½	70½	10,15
W. W. Snow, do	Sterling.....	16	9	9	13	20	67	1,15
Jno. Hanson, do	do	15	9	6	13	19	62	1,15
F. J. Hearn, do	Mammoth Cluster	15½	9½	6½	13	16½	61	1,15
Mrs. S. Scarlett, do	do	15	9	7	13	16½	60½	1,15
MAGNETAWAN AGR. SOCIETY.								
<i>Judge—W. J. Hamilton, Raymond.</i>								
Wm. Keppy, Spence	O. A. C. 72.....	13	23	6	20	17	79	
H. H. Miller, Magnetawan	do	16	17	7	19	19½	78½	15
C. E. Miller, do	do	14	22	5	19	18	78	15
Mrs. R. Veitch, Spence	Abundance.....	14	23	5	18	17½	77½	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
		(20)	(25)	(10)	(20)	(25)	(100)	
PARRY SOUND.— <i>Continued.</i>								
MAGNETAWAN AGR. SOCIETY.— <i>Con.</i>								
T. L. King, Magnetawan	Mammoth Cluster	13	20	7	17	20	77	15
J. H. Doherty, Midlothian	do	14	18	7	18	18½	75½	17
Jas. Stewart, Magnetawan	O. A. C. 72.....	10	20	7	19	19	75	
Robt. Elliott, do	Mammoth Cluster	15	22	6	10	19	72	
J. Wurm, Port Carmen	Banner.....	17	5½	9	20	18	69½	2
T. E. Stewart, Magnetawan ...	Mammoth Cluster	14	19	8	10	17	68	15
McKELLAR AGR. SOCIETY.								
<i>Judge—J. D. McKenna, Loretto.</i>								
W. E. Taylor, McKellar	O. A. C. 72.....	12	22	8	18	21	81	15, 17
J. H. Ball, do	Vel. Russian.....	13	20	7	19	21	80	15
Jno. McKeown, do	Northland.....	14	18	8	18	21	79	10, 15
Robt. Moore, do	Sheffield.....	16	20	6	16	20	78	15
R. H. Moffatt, do	Sterling.....	15	16	7	18	20	76	10, 4
C. J. McKeown, do	O. A. C. 72.....	12	18	8	18	19	75	13, 15
W. H. Moore, do	do	13	15	8	18	20	74	4, 15
Thos. Moffatt, do	Canadian Pride..	13	22	6	15	17	73	15
Geo. Quinn, do	Rennie's Early Yielder.....	12	18	7	16	19	72	4, 10, 15
Wm. Moffatt, do	Canadian Pride..	13	15	7	16	19	70	15, 17
R. A. Jackson, do	Early Cluster....	12	18	8	14	17	69	4, 14, 15
Jas. Gould, do	Mammoth Cluster	13	10	7	17	21	68	10, 4, 15
Jno. Junch, do	White Cluster....	15	6	7	17	22	67	10, 15
W. Quinn, do	Rennie's Early Yielder.....	9	20	8	19	10	66	15
A. J. Moffatt, do	do	9	20	8	17	10	64	15
McMURRICH AGR. SOCIETY.								
<i>Judge—R. Murphy, Alliston.</i>								
Fletcher Walker, Royston	Amer. Banner....	17½	25	9	19	22	92½	
P. J. Farrell, Sprucedale	Rennie's Early Yielder.....	18	23	8½	18½	22½	90½	15
H. H. Turnbull, Doe Lake	O. A. C. 72.....	18	22	9	18	22½	89½	15
H. G. Farrell, Sprucedale	Rennie's Early Yielder.....	18	21	8½	18½	22	88	15
W. J. Fowler, do	Reg. Banner.....	17½	20	8	19	22	86½	15
J. F. Nelles, Doe Lake	Abundance.....	16½	19	8	18½	21½	83½	15
Geo. Downes, Sprucedale	Reg. Banner.....	13	20	8	18½	17	76½	15
C. & J. Stewart, McMurrich ..	Banner.....	14	18	7	18	18	75	15
Marshall & Arnett, Sprucedale.	Rennie's Early Yielder.....	12½	20	8	17	17	74½	
PERRY AGR. SOCIETY.								
<i>Judge—R. Murphy, Alliston.</i>								
Mrs. Ed. Tonner, Emsdale	Australian.....	16	24	9	17½	20	86½	
Geo. Gilpin, do	Mammoth Cluster	16½	22	8½	18	21	86	15
J. Hanham, do	Swedish Giant...	17	21	8	17½	22	85½	15

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.			Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
PARRY SOUND.— <i>Continued.</i>				(20)	(25)	(10)	(20)	(25)	(100)	
PERRY AGR. SOCIETY.— <i>Con.</i>										
Wm. J. Murdy,	Emsdale	....	Rennie's Early							
			Yielder.....	15½	24	8	18½	19	85	
R. J. Gibson,	do	....	O. A. C. 72.....	16	22	8	18½	20	84½	15
C. T. Hayward,	do	....	.....	16½	22	8	16½	21	84	
Wm. Jenkin,	do	....	Abundance.....	16	21	8	17½	21	83½	15
Wm. Worsfold,	do	....	Rennie's Early							
			Yielder.....	15	23	8	17	20	83	
H. R. Hayward,	Scotia	.....	Mammoth Cluster	15½	23	7	17½	19½	82½	
J. Hartell,	Scotia Jct.	.....	Banner.....	14	24	8	18	18	82	
H. Tebby,	Fern Glen	.....	Rennie's Early							
			Yielder.....	15½	20	9	17	19½	81	
E. Hughes,	Emsdale	.....	Mammoth Cluster	15½	20	8	16	20	79½	15
Wm. Mitchell,	do	.....	do	14½	20	8½	17	19	79	15, 10
B. Passmore,	do	.....	Rennie's Early							
			Yielder.....	14	21	8	17	18	78	15
T. E. Rawley,	do	Box 29	O. A. C. 72.....	15	17	8	18	18½	76½	15, 10
A. D. Burton,	Katrine	.....	Australian.....	15½	16	8½	17	19	76	10, 15
A. E. Rowley,	West Toronto	..	O. A. C. 72.....	13½	18	8	18	18	75½	10
Samuel McQuillan,	Emsdale	..	Banner.....	14	18	7	18	18	75	15
J. A. McDonald,	do	..	do	13½	18	8	17	18	74½	15
POWASSAN AGR. SOCIETY.										
<i>Judge—J. N. Sorley,</i>										
<i>Ottawa, R.R. 1.</i>										
Jos. Alston,	Powassan	.....	O. A. C. 72.....	16	24½	8	20	21	89½	15
H. B. Purdon,	do	.....	Amer. Banner....	15½	23	8	18½	19½	84½	15
P. R. Owens,	do	.....	O. A. C. 72.....	16	24	5	19	20	84	15, 11, 12
Owen Gough,	do	R.R. 3	Rennie's Early							
			Yielder.....	16	23	7½	19	18	83½	15
L. Purdon,	do	.....	Amer. Banner....	15½	22½	7½	18½	19	83	15
Jas. M. Healey,	do	.....	Granary Filler...	16	23½	3½	18	18½	79½	15, 17
A. R. Gougeon,	do	.....	Banner.....	15	22	8	12	19	76	15, 14
E. J. Purdon,	do	.....	Amer. Banner....	15	21	6½	13	20	75½	15, 17
D. Graff,	Alderdale	.....	Banner.....	12	22	7	17	17	75	15
W. G. Oldfield,	Powassan	.....	Newmarket.....	13	21	4	18	18½	74½	15, 12
Jas. Oldfield,	do	.....	do	13½	23	3	18	16½	74	15
J. D. Healey,	do	.....	Granary Filler...	14	21	3	18	17½	73½	15, 17, 12
Jno. Hogan,	do	.....	Amer. Banner....	15	23	4	12	17½	71½	15
W. H. Alston,	do	.....	Mammoth Cluster	14½	21	6	10	18	69½	15
ROSSEAU AGR. SOCIETY.										
<i>Judge—Thos. Hall, Brooklin.</i>										
H. J. Sirett,	Rosseau	.....	Gold Rain.....	17	24	9	19½	22	91½	
A. T. Sirett,	do	.....	O. A. C. 72.....	17½	23	8½	19½	22	90½	10, 15
M. Wilson,	do	.....	Gold Rain.....	17	23	9	18	22	89	15
Sam. Kettle, Jr.,	Maple Lake Sta.	O. A. C. 72.....	.....	17	21	9	19½	22	88½	13, 14, 15
Jno. Crawford,	Rosseau	.....	.....	18½	22	7	18½	22	88	15, 10

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.		Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
PARRY SOUND.— <i>Continued.</i>			(20)	(25)	(10)	(20)	(25)	(100)	
ROSSEAU AGR. SOCIETY.— <i>Con.</i>									
Jno. McCans, Rosseau	Gold Rain.....	15	23	9	19	20½	86½	15	
R. B. Mahon, do	Rennie's Early Yields.....	16	21	9	19	21	86		
Geo. E. Cole, do	Gold Rain.....	16½	21	7	19	22	85½	14, 13, 15	
J. E. Meisenheimer, Hekkla ..	Mammoth Cluster	17	23	9	15	21	85	14, 15	
Alex. Crawford, Sr., Rosseau ..	Gar. Abundance..	15½	23	7	18	21	84½	13	
Wm. McCauley, do	O. A. C. 72.....	15	21	9	19	20	84	4	
S. Stoneman, Turtle Lake	Amer. Banner....	17	20	8	17	20	82	14	
H. J. Stoneman, do	Gold Rain.....	14	20	8	19	20½	81½	1, 4	
G. Grenke, Hekkla	do	17	19	6	19	19	80	14, 15	
R. Stoneman, Turtle Lake	Clus. Abundance.	14	22	8	16	18	78	4	
S. A. Foote, Rosseau	Gold Rain.....	13	21	7	18	18½	77½	15	
Thos. Beers, Turtle Lake	Storm King.....	13	21	8	16	17	75	4, 9	
STRONG AGR. SOCIETY.									
<i>Judge—D. McClure, Norval, R.R. 2.</i>									
J. Cunningham, Sundridge, R.R.2	Mammoth Cluster	16	18	8	17	20½	79½	15	
Geo. Frost, do	O. A. C. 72.....	15½	18	7	17	20	77½		
Jno. Paget, do	do	13½	20	8	18	17	76½	10, 13	
Jas. Prior, do	Mammoth Cluster	14½	15	7	17	20	73½	2	
Thos. Hodgson, Pearceley	O. A. C. 72.....	14	17	6	17	18½	72½		
Peter Lamb, Sundridge	do	13½	17	7	15	18	70½		
Wm. Kemp, do	do	13½	14	7	15	15	64½	15	
D. Hodgson, Pearceley	do	12½	18	6	15	12½	64	15, 10	
J. Willoughby, Sundridge	Banner.....	12	15	6	15	15	63	15	
Jno. Wilson, do R.R. 1	O. A. C. 72.....	12	13	7	15	15	62	15, 2	
F. W. Hannaford, do R.R. 1	do	10	15	5	18	12½	60½	15	
J. P. Johnstone, Jr. do R.R. 1	Mammoth Cluster	12	17	7	8	13	57	10, 15	
UNITED TPS. AGR. SOCIETY.									
<i>Judge—W. J. Hamilton, Raymond.</i>									
J. W. Labrash, Maple Island ..	O. A. C. 72.....	16	22	9	20	21	88	15	
Wm. Willard, Dunchurch	do	16	21	5	20	20	82		
W. J. Bobson, do	Banner.....	17	17	7	20	20	81	10	
R. J. Forley, do	Mammoth Cluster	16	17	6½	18	20	77½	15, 17	
G. H. Simpson, do	do	16	22	7	11	21	77		
W. J. Brear, Maple Island	Early Yields....	11	21	7	18	18½	75½	14, 15	
W. T. Lundy, Dunchurch	O. A. C. 72.....	12	21	6	18	18	75		
Jos. Whitmell, do	do	16	15	6	17	20	74	15	
F. W. Macfie, do	do	13	17	6	17	19	72	15, 17	
R. A. Moore, do	Egyptian.....	14	16	6	12	17	65	15	
Robt. Moore, Sr., do	Mammoth Cluster	13	5	8	15	17	58	15	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.			Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
PEEL.				(20)	(25)	(10)	(20)	(25)	(100)	
ALBION AND BOLTON AGR. SOCIETY.										
Judge—R. H. Crosby, Markham.										
W. E. Downey,	Bolton	Banner.....	17	15	9	18	23	82	2,4,15	
E. Armstrong,	do	do	18	15	8	18	21	80	15	
A. S. Rutherford & Son,	do	O. A. C. 72.....	17	10	9	19	23	78	1,4	
O. H. Downey,	do	do	16	15	8	17	20	76	2,15	
N. C. Downey,	do	Banner.....	17	13	8	17	20	75	2,4,15	
Geo. Downey,	do	do	16	9 ³ ₄	9	17	23	74 ³ ₄	1,2,15	
A. Robinson,	do	Ligowa.....	15	15	8	17	19 ³ ₄	74 ³ ₄	2,15	
E. W. Kellam, Nashville	.....	O. A. C. 72.....	17	....	8	19	23 ³ ₄	67 ³ ₄	1,2,15	
A. H. McCort & Son,	Bolton	do	18	....	9	15	22 ³ ₄	64 ³ ₄	1,2,15	
Jas. Sheardown,	do	do	16	....	8	18	21	63	1,2,4,15	
M. C. Moffatt,	do	Ligowa.....	15	....	9	10	20	54	1,2,4,15	
PEEL AGR. SOCIETY.										
W. J. Hamilton, Raymond.										
F. C. Fraser, Streetsville, R.R. 3	O. A. C. 72.....	16	22	9	19	20	86	15		
D. McClure, Norval, R.R. 2	do	16	22	6	19	22	85	15		
B. Lansdell, Brampton, R.R. 3	do	13	23	8	18	22	84	16		
J. A. Fletcher, do Box 355	do	17	17 ¹ ₂	8	19	22	83 ¹ ₂	12,14		
W. G. Witherspoon, Woodbridge, R.R. 1	do	17	17	9	19	21	83	2		
W. J. Fraser, Streetsville, R.R. 3	do	11	23	7	19	21	81			
A. McLean, Brampton, R.R. 3	do	13	19	9	18	20	79			
J. V. Snell, do R.R. 3	do	16	11	9	19	21	76	2		
A. M. Thomson, do R.R. 2	Snowflake.....	15	16	7	16	21	75			
W. F. Willis, do R.R. 2	Abundance.....	12	20	5	19	16	72			
A. E. Might, do R.R. 6	O. A. C. 72.....	13	16	6	17	19	71	2		
Geo. Cheyne, Malton, R.R. 1	do	16	3	9	19	22	69	2,10		
B. H. Bull & Sons, Brampton, R.R. 5	do	17	10	6	16	18	67	2		
Jas. Bovaird, Brampton, R.R. 3	do	15	5	8	18	20	66	2,15		
TORONTO TP. AGR. SOCIETY.										
Judge—W. J. Hamilton, Raymond.										
J. D. Steen, Meadowville	O. A. C. 72.....	17	23	10	19	23	92	15		
J. E. Weylie, Streetsville, R.R. 3	Yel. Russian.....	16 ¹ ₂	21	9	18	22	86 ¹ ₂	15		
W. J. Drinkwater, do	O. A. C. 72.....	17	21	9	18	21	86	15		
J. W. Miller, do R.R. 2	do	17	22	9	17 ¹ ₂	20	85 ¹ ₂	2		
J. B. Ross, do	do	17	18	9	19	22	85	10,15		
H. R. Kay, Erindale	do	15	24	8	18	19	84			
C. W. Sparling, Streetsville R. 2	do	12	23	9	19	19	82	15		
D. H. McCaugherty, do	do	17	10	9	18	21	75	2,15		
J. A. Workman, do	Siberian.....	11	19	9	16	19	74	14		
G. S. Bonham, do	O. A. C. 72.....	9	22	7	18	16	72			

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
PERTH.		(20)	(25)	(10)	(20)	(25)	(100)	
FULLARTON, LOGAN AND HIBBERT AGR. SOCIETY.								
Judge—Andrew Elliott, Galt.								
Amos Doupe, Kirkton	O. A. C. 72	16½	24	8	20	21½	90	
Geo. Hillebrecht, Brodhagen	do	16¾	24	8	19½	19½	87½	
Alex. Cole, Mitchell, R.R. 1	.....	16½	23	7	19	21	86¾	
Robt. Norris, Staffa	O. A. C. 3	13	24	8	19	21	85	
W. G. Millson, Munro, R.R. 1	Banner	17	22	7	19	19¾	84¾	
Robt. Hodgson, Dublin, R.R. 2	do	14¾	24	7	19	19½	84	
Jas. Ray, Mitchell, R.R. 5	O. A. C. 72	14	24	7	19½	19	83½	
S. C. Millson, do R.R. 1	do	16½	14	8	18	20½	77	
Wm. Potts, do R.R. 2	Banner	17½	9	7	19½	21½	74½	
Geo. Benneweis, do R.R. 2	Polish	17½	9	9	16	21	72½	
H. R. Greenwood, do R.R. 1	Siberian	16½	10	8	16	21	71½	
Wm. Forrester, do	.....	14	9	9	19	20	71	
KIRKTON AGR. SOCIETY.								
Judge—Andrew Elliott, Galt.								
P. Blackler, St. Mary's, R.R. 1	O. A. C. 72	18	24	8	20	22	92	
Jas. More, Kirkton	Reg. Banner	16	18	8	20	22	84	1
Robt. Ratcliffe, St. Mary's, R.R. 1	Yel. Russian	16	20	8½	19	20	83½	
M. Brethour, do R.R. 6	O. A. C. 72	17½	18	8	19	20½	83	
Wm. Arthur, do R.R. 1	Gold Drop	16	19	9	17	21½	82½	2
Jos. White, do	Yel. Russian	15	24	7	19	17	82	
Robt. Berry, do R.R. 6	O. A. C. 72	17½	12	9	19½	23	81	1
Wm. Marshall, do R.R. 1	Banner	17½	18	7½	17	19½	79½	2
W. Shier, Woodham	Western	16	16	7½	19	20	78½	2
A. M. Doupe, St. Mary's, R.R. 6	Reg. Banner	16½	15	7	19	20	77½	2
A. E. Copeland, Woodham	Newmarket	16	14	9	17	20½	76½	
J. H. Robinson, St. Mary's, R.R. 1	Yel. Russian	16½	8	9½	19	19½	72½	2
H. Armstrong, Science Hill	O. A. C. 72	14¾	8	9	19½	18	69½	1, 4
Jas. Brown, St. Mary's, R.R. 1	Yel. Russian	15½	7	8½	12	19	61½	1
STRATFORD AGR. SOCIETY.								
Judge—Geo. E. Foster, Honeywood.								
R. Thompson, St. Paul's, R.R. 2	Yel. Russian	17	24	9½	19	23½	93	
A. Hotson, do	O. A. C. 72	19	23	9	18	23½	92½	2
W. Wood, Sr., do R.R. 4	Banner	19	24	9	15	24	91	
A. Horre, Gads Hill Sta., R.R. 1	do	16½	23	9	18	23½	90	
M. Arbogast, Stratford, R.R. 5	O. A. C. 72	20	15	9	20	24½	88½	2
Jno. Murray, St. Paul's, R.R. 2	Banner	17½	22	9	15	22½	86	4
T. McGunigal, Stratford, R.R. 1	do	15	21	9	18½	21½	85	4
J. Litt, Sebringville	O. A. C. 72	18	20	7	15	23	83	2
T. B. Murray, Stratford, R.R. 3	Banner	17	23	7	16	20	83	
Jno. Fraser, do R.R. 3	O. A. C. 72	16½	22	7	16	21	82½	
F. Bell, St. Paul's, R.R. 4	Abundance	14	24	9	15	20	82	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.		Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	Yield and quality of grain.	Totals of scores.	Woods in competitors' fields.
PERTH.— <i>Continued.</i>			(20)	(25)	(10)	(20)	(25)	(100)	
STRATFORD AGR. SOCIETY.— <i>Con.</i>									
M. Ballantyne, Stratford, Box 292	Banner.....	18 $\frac{1}{2}$	18	9	12	23 $\frac{1}{2}$	81	2	
W. H. Douglas, Carlingford ..	do	16 $\frac{1}{2}$	22	7	12	22 $\frac{3}{4}$	80		
Jno. Dempsey, Stratford, R.R. 2	O. A. C. 72.....	15	20	9	10	21 $\frac{1}{2}$	75 $\frac{1}{2}$		
Jas. I. Rutherford, do	R.R. 1 Ligowa.....	15 $\frac{1}{2}$	15	7	16	19 $\frac{1}{2}$	73	10	
Geo. Herold, do	R.R. 3 Yel. Russian....	16	15	8	12	22	73	1, 2	
J. A. Chowan, do	R.R. 3 Banner.....	16 $\frac{1}{2}$	24	7	....	22 $\frac{1}{2}$	70		
Jno. C. Rutherford, do	R.R. 1 Ligowa.....	11	16	7	16	18	68	2	
Jas. Hyslop, do	R.R. 2 O. A. C. 72.....	17	....	9	18	23	67	1, 2	
H. Dunsmore, do	R.R. 2 Banner.....	16	10	7	10	22	65	1, 2	
E. Dunsmore, do	R.R. 2 Rennie's Early								
	Yielder.....	13 $\frac{1}{2}$	20	8	....	20 $\frac{1}{2}$	62		
D. Thompson, St. Pauls, R.R. 2	Banner.....	16	....	9	12	22 $\frac{1}{2}$	59 $\frac{1}{2}$	1	
PETERBOROUGH.									
EAST PETERBOROUGH AGR. SOCIETY.									
<i>Judge—Jas. Boyd, Pickering, R.R. 2.</i>									
W. Thompson, Indian River, R.									
R. 3		16	23	8	18	22	87	15	
Sargent & Son, Westwood	O. A. C. 72.....	16	21	9	18	22	86	10, 15	
A. Humphries, Hastings, R.R. 3	.....	16 $\frac{1}{2}$	23	6	18	22	85 $\frac{1}{2}$	15	
R. E. Birdsall & Son, Birdsall.	O. A. C. 72.....	17	18	8	19	23	85	1, 2, 10, 9	
T. B. McMaster, Norwood, R.R. 3	do	15	22 $\frac{1}{2}$	6	19	22	84 $\frac{1}{2}$	15	
Jno. Rose, Indian River, R.R. 2	do	16	18	8	19	23	84	1, 2, 10, 15	
Jno. English, Norwood, R.R. 3	Reg. Banner.....	14	20	9	19	21	83	4, 15	
M. P. Grover, do	Amer. Banner....	15	19	9	17	22	82	1, 10	
J. A. Knox, do R.R. 1	O. A. C. 72.....	16	18	7	18	22	81	11, 15, 10	
H. Dunham, Campbellford	do	17 $\frac{1}{2}$	12	8	19	23	79 $\frac{1}{2}$	2, 10, 15	
Noah King, Havelock	English Banner..	13	23	5	18	20	79	10	
Hugh Kelly, Norwood	Irish.....	13	17	9	16	21	76	10, 15	
W. C. Brackenridge, Westwood.	O. A. C. 72.....	17	5	8	19	23	72	7, 10, 15	
OTONABEE AGR. SOCIETY.									
<i>Judge—A. Forster, Markham,</i>									
S. McIntyre, Keene, R.R. 2....	Ligowa.....	18	23	9 $\frac{1}{2}$	19	22 $\frac{1}{2}$	92	2, 15	
C. C. Nelson, Peterboro, R.R. 8	O. A. C. 72.....	17 $\frac{1}{2}$	21	9	20	23 $\frac{1}{2}$	91	1, 14	
S. M. Comrie, do R.R. 8	do	19	19	9	20	23 $\frac{1}{2}$	90 $\frac{1}{2}$	2, 15	
H. McFarlane, do R.R. 8	do	16 $\frac{1}{2}$	23	8 $\frac{1}{2}$	19	22 $\frac{1}{2}$	89 $\frac{1}{2}$	15, 14	
W. A. Nelson, Keene, R.R. 1 ..	Danish Swede....	17 $\frac{1}{2}$	19	9	19	23	87 $\frac{1}{2}$	11, 10	
P. Drummond, Peterboro, R.R. 8	O. A. C. 72.....	19	15	9	19	23 $\frac{1}{2}$	89 $\frac{1}{2}$	2, 12, 15, 14	
H. Weir, Lang	Banner.....	15	20	9	16	20	80	10, 14, 15, 13	
R. E. Drummond, Peterboro,									
R.R. 8	Siberian.....	17 $\frac{1}{2}$	10	9	19 $\frac{1}{2}$	23	79	2, 14, 15	
J. E. Manley, Peterboro, R.R. 8	Abundance.....	16	10	9	19	21 $\frac{1}{2}$	75 $\frac{1}{2}$	12, 15, 5	
D. McCarthy, Keene, R.R. 1 ..	Wide-a-wake....	15	10	9	15	20 $\frac{1}{2}$	69 $\frac{1}{2}$	1, 10, 11, 15	
M. O'Keefe, do R.R. 1	Banner.....	13	10	8	16	19	66	2, 10, 14, 15	
R. A. Nelson, do R.R. 1	Danish Swede....	15	12	5	14	19	65	2, 10, 15, 14	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.		Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
PRESCOTT.			(20)	(25)	(10)	(20)	(25)	(100)	
ALFRED AGR. SOCIETY.									
<i>Judge—H. R. Blakely, Eldorado, R.R. 1.</i>									
A. Daoust, Alfred.....	Washington.....	16½	22	9	18½	23	89		
Ferd. Daoust, do	Banner.....	16½	22	8½	18	22	87		
D. Parisien, do	do	16	22	8	19	21½	86½	4	
F. Daoust, L'Original	do	16½	23	7	17½	22	86	17	
J. A. Cadieux, Alfred	do	13½	22½	8	19	20½	83½	4	
A. Langevin, do	do	16½	21	8	17	20½	83	4	
S. Parisien, do	do	14½	21	8	18	21	82½	4	
Jos. Robillard, do R.R. 11	do	15½	20	8	17½	20½	81½	4	
F. X. Cadieux, do	do	14½	21	8	17	20½	81	4	
M. Leroux, Plantagenet	Grey Dane.....	13½	21	9	14	23	80½		
A. Charbonneau, Alfred, R.R. 1	Banner.....	15	18	7	17½	20½	78	4, 13	
J. B. Gratton, do	do	14½	19	8	16	20	77½	4	
Dr. W. Gaboury, do	do	13½	17	7½	17	20½	75½	4	
L. Gratton, do	do	13	18	6	18	19	74	2, 4, 8	
A. Blondin, Plantagenet	E. Florison.....	14½	10	8	17	19½	69	4, 15	
PRINCE EDWARD.									
AMELIASBURG AGR. SOCIETY.									
<i>Judge—Geo. R. Bradley, Kars.</i>									
J. R. Anderson, Mountain View	Yel. Russian....	16½	23	8	20	23	90½	10, 15	
Jas. S. Wallbridge, Rossmore	Banner.....	16½	20	8	18	20½	83	10	
W. H. C. Roblin, Ameliasburg..	Yel. Russian....	14½	21	8½	18	19½	81½	15	
C. R. Paliament, do ..	do	15½	20	8	16	19	78½	10, 15	
H. Young, Rossmore	do	15	20	7	17	18½	77½	10, 4	
J. A. Walker, do	do	15	18	7	16	19½	75½	14, 10	
L. Wallbridge, do	Ligowa.....	15½	12	8	15	20½	71	1, 4	
J. A. Weese, do	White Wave....	12	19	6½	15	18	70½	14, 15	
J. E. Redner, Rednerville	Amer. Banner....	14	14	6½	16	19	69½	10, 15	
E. E. Wallbridge, Rossmore ...	Yel. Russian....	15½	10	8½	15	19½	68½	1, 8, 15	
PRINCE EDWARD AGR. SOCIETY.									
<i>Judge—Geo. R. Bradley, Kars.</i>									
H. A. Anderson, Hillier, R.R. 1	Banner.....	18	23	8½	18	22½	90	15	
W. J. Barber, Rossmore	O. A. C. 72.....	18	21	8½	17	22	86½	10	
B. R. Leavens, Bloomfield	do	15½	21	8	18	21½	84	10, 15	
E. B. Purtelle, do	Rennie's Special.	15½	22	8	18	20	83½	15	
J. E. Huff & Son, do R.R. 1	O. A. C. 72.....	13½	22	8	20	19½	83	15	
G. Thompson, do	do	17	20	7	18	20	82	8½	
M. A. Foster, do R.R. 2	Banner.....	18	15	8½	17	22½	81	1, 15	
R. W. Young, Woodrour	White Wave....	14½	20	7	16	19	76½	14, 15	
D. E. Ackerman, Picton	Banner.....	14½	18	7½	16	18½	74½	10, 14, 15	
Wm. Pearsall, do R.R. 1	O. A. C. 72.....	14	16	7	18	19	74	10, 15	
E. R. DeLong, do R.R. 6	Banner.....	13½	15	7½	18	19½	73½	15	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	†Weeds in competitors' fields.
PRINCE EDWARD.— <i>Continued.</i>		(20)	(25)	(10)	(20)	(25)	(100)	
PRINCE EDWARD AGR. SOCIETY. — <i>Continued.</i>								
C. Mallory, Bloomfield	Western Banner.	14½	13	7½	18	19½	72½	14
M. Gilbert, Demorestville	Rennie's Special.	14½	14	8	16	19	71½	4, 14, 15
W. H. Gough, Bloomfield	O. A. C. 72.....	14½	15	7	16	18½	71	10, 15
H. W. Bedell, Picton, R.R. 6..	Banner.....	16½	10	6½	18	19½	70½	7, 10, 15
G. H. Bolton, do R.R. 6..	do	13½	16	6	15	19	69½	10, 14, 15
RAINY RIVER.								
ATWOOD AGR. SOCIETY.								
<i>Judge—Hy. Knight, Jr., Sault Ste. Marie, R.R. 1.</i>								
F. E. Songhurst, Sleeman	Banner.....	15	22	8	19	19	83	
O. M. Isberg, do	do	15	22	8	19	18½	82½	15
T. A. Smart, Pinewood .....	.....	16½	16	9	19	20	80½	2
W. T. Sleeman, Sleeman	Ligowa.....	17	16	8½	18	18	77½	2
W. McKenzie, do .....	.....	17	15	5	19	19½	75½	2
A. R. Reid, Pinewood	O. A. C. 72.....	16	10	9	19	20	74	2
Thos. Nolan, Sleeman	Abundance.....	16	16	7	14	19	72	2, 7
Carl Peters, do .....	.....	15	14	7	18	17	71	2
D. J. Ewald, Rainy River ....	.....	16	10	6	15	18	65	2, 15
H. J. Hunter, Sleeman	Sheffield Standard	16½	.....	8	15	20	59½	2, 15
P. McLeod, Rainy River .....	.....	13	.....	7	19	13	52	2, 15, 1
A. J. Hunter, Sleeman	Sheffield Standard	14	.....	6	15	15½	50½	2
L. Armstrong, do .....	.....	13	.....	6	16	13	48	2
Jno. Kearney, do	Banner.....	14	.....	5	10	16	45	2, 7, 15
RENFREW.								
ARNPRIOR AGR. SOCIETY.								
<i>Judge—M. J. Casselman, Morrisburg.</i>								
A. Russell, Arnprior	O. A. C. 72.....	18½	23½	9½	20	23½	95	
N. S. Robertson, do	Banner.....	19	23	9	19	23½	93½	4
W. A. Mackey, do	do	18½	22	9½	19	23	92	15, 4
Jas. Wallace, do	do	19	22	9½	18	23	91½	15
D. G. Campbell, do R.R. 2 .....	.....	17½	23	8	19	22½	90	
W. A. Young, do	Victory.....	17½	22	9½	18	21½	88½	15
S. G. Lodge, do	Banner.....	17½	20	9	18½	22½	87½	4, 15
Jas. Wallace, do	do	17	23	7	18	21½	86½	
D. K. Cunningham, do	do	16	20	8½	18	20½	83	
Jno. Rafter, do	Imp. Banner....	17½	18	8½	16	22½	82½	1
Chas. Mackey, do	Banner.....	16	16	9	18	22½	81½	4, 15
J. O. C. Havey, do	do	15½	18	9	18	19½	80	10
Thos. Havey, do .....	.....	14½	20	8	18	19	79½	
A. Wallace, do	Banner.....	16½	15	9	17	21½	79	4
J. S. Havey, do .....	.....	15½	18	8	17	19½	78	
J. Hemphill, do	Banner.....	16½	21	9½	10	20½	77½	14

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.			Name of variety.		*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	†Weeds in competitors' fields.
RENFREW.—Continued.					(20)	(25)	(10)	(20)	(25)	(100)	
NORTH RENFREW AGR. SOCIETY.											
Judge—M. J. Casselman, Morrisburg.											
A. M. Barr, Beachburg	.....	O. A. C. 72	.....	18½	23	9	18	23½	92		
Wm. Headrick, do	.....	do	.....	18	23	9	19	22½	91½	4, 10, 15	
Robt. Bennie, do	.....	Newmarket	.....	17½	24	9	19	20½	90½	15	
R. S. McClelland, do	.....	Granary Filler	...	18	23	8½	19	21½	90	15	
A. Munroe, do	R.R. 2	O. A. C. 72	.....	18	23	8	18	22½	89½		
Jas. W. Buchanan, do	R.R. 1	Yel. Russian	.....	18½	23	8½	17	22½	89½		
S. McCagherty, Westmeath	.....	Granary Filler	...	17½	23	9	18	21½	89	15	
Jos. Keyes, do	R.R. 2	.....	.....	18	22	9	17	22½	88½	4, 15, 2	
Amos. Bulmer, do	.....	Empire	.....	17½	22	9½	18	21	88	15	
J. M. Metcalfe, Beachburg, R.R.2	.....	Granary Filler	...	18	19	9½	16	21½	84	4, 15, 2	
R. A. Fraser, Forester's Falls	..	O. A. C. 72	.....	16	22	7	19	20	84	15	
J. A. Brown, Beachburg	.....	do	.....	17	22	8	15	21	83	4, 15	
S. A. Buchanan, do	.....	do	.....	16	20	9	18	19½	82½	4, 15	
Herb. Comrie, do	.....	Amer. Wonder	...	17	17	8	17	22	81	2	
Jos. Valliant, do	.....	Granary Filler	...	14½	18	9	17	20	78½	4, 15	
H. S. Brown, do	R.R. 2	Bumper King	....	16	18	9	15	20½	78½	4, 2, 15	
W. H. Metcalfe, do	.....	O. A. C. 72	.....	17	16	9	17	19	78	4	
T. H. Collins, Westmeath, R.R.2	.....	Granary Filler	...	18	10	9	18	21½	76½	4, 2	
J. Stevenson, Beachburg	.....	White Wave	.....	14	17	8	17	19½	75½	2, 15	
T. A. Ross, Westmeath	.....	Waverly	.....	16	14	9	16	20½	75½	4	
J. W. Buchanan, Beachburg	...	O. A. C. 72	.....	16	16	8	15	20	75	4, 2	
W. P. Robertson, do	R.R. 1	White Wave	.....	15½	16	8	14	20	73½	4, 15	
RUSSELL.											
RUSSELL AGR. SOCIETY.											
Judge—H. R. Blakely, Eldorado, R.R. 1.											
D. J. Mather, Russell, R.R. 2..	Banner	.....	17	22	8	19	22	88	2		
D. Kinkade, Felton	.....	O. A. C. 72	.....	15½	20	8	20	21	84½		
H. McKeown, Russell	.....	do	.....	16	19	8	18	22½	83½	2	
D. Cummings, do	.....	Imp. Banner	.....	15	21	7	19	21	83	2, 14	
A. McDougall, Marvelville	...	O. A. C. 72	.....	16	20	6	18	21½	81½	2, 10	
G. R. James, Russell, R.R. 2 ..	do	.....	15	19	8	18	21	81	2, 4		
Thos. Sparks, Vars	.....	Newmarket	.....	14	19	8	18	21	80	2	
Robt. Scott, Russell, R.R. 2	Imp. Banner	.....	15½	17	7	18	22	79½	2		
A. E. Sparks, do	R.R. 2	Western	.....	15	19	7	17	20½	78½	2	
Duncan Cummings, do	.....	Banner	.....	16½	17	7	17	20½	78		
W. J. Hume, Marvelville	.....	.....	.....	13½	19	7	18	20	77½	2	
Mrs. Florence McKay, Russell..	Banner	.....	12½	18	7	20	19½	77	10		
W. A. Morrow, do	Western	.....	11	21	6	19	19½	76½	2		
J. W. James, Edwards, R.R. 1.	O. A. C. 72	.....	11½	19	8	18	19½	76	4		
E. Summers, Russell	do	.....	12	20	7	17	19½	75½	15		
R. Lake, do	do	.....	12½	19	7	17	19	74½			
A. Long, do	Western	.....	13½	19	7	16	18½	74			
W. C. Boyd, do	Banner	.....	14½	15	7	17	19	72½			
J. A. Buckingham, do	R.R. 2	do	.....	11½	18	7	16	19½	72		
Edgar Craig, do	Amer. Banner	....	15	10	7	18	20	70			
D. J. Loucks, do	Banner	.....	13½	16	4	17	18	68½	2		

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.			Name of variety.		*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
SIMCOE.					(20)	(25)	(10)	(20)	(25)	(100)	
BARRIE AGR. SOCIETY.											
<i>Judge—W. F. B. Switzer, Streetsville.</i>											
O. M. Hickling, Barrie, R.R. 2	O. A. C. 72.....	17	24	9	19	23	92				
G. M. Coutts, Midhurst	do	17½	24	9	19	21	90½				
T. G. Sythes, Thornton	do	16	22½	8	19	22½	88	15			
A. A. Garvin, Midhurst	Imp. Banner.....	17½	23	7	18	22	87½				
R. D. Coutts, do	O. A. C. 72.....	17	23	9	14	21	84	15			
F. J. Frankcom, do	Imp. Banner.....	15½	20	8	18	20½	82	15, 4			
J. & M. Coutts, do	Banner.....	18	15	8	17	23	81	1, 15			
A. W. Partridge, Barrie, R.R. 1	O. A. C. 72.....	14	18½	8	19	21	80½				
V. A. Caldwell, do R.R. 1	Abundance.....	15	21	8	16	20	80	4, 15			
Jas. J. Orok, Midhurst	Imp. Banner.....	16	20	8	15	20½	79½	15			
J. A. Bonney, do	\$1,000	17	20	6	16	20	79	15			
W. L. Russell, do	Imp. Banner.....	15½	20	7	16½	20	79	15, 4			
R. A. Sutherland, Stroud	Siberian.....	13	15	8	16	21	73	15, 4			
J. D. Orchard, Minesing	O. A. C. 72.....	14	15	8	16	18	71	1, 15			
COLDWATER AGR. SOCIETY.											
<i>Judge—W. F. B. Switzer, Streetsville.</i>											
C. J. Gratrix, Waubauskene, R. 1	O. A. C. 72.....	17	24	9	18	22	90				
C. O. Spence, Coldwater, R.R. 1	do	17	22	7	17	22	85	15, 14			
Wm. Gladall, do R.R. 1	do	16	20	7½	16	20	79½	15			
D. C. Lovering, do R.R. 1	do	17	14	7	18	23	79	1, 4, 15			
O. H. Swan, Victoria Harbor, R.R. 1	Golden Drop.....	14	22	7	16	19	78				
A. R. Dunlop, Coldwater, R.R. 3	O. A. C. 72.....	15	18	8	15	19	75	4, 14, 15			
W. J. Walker, do R.R. 3	do	16½	10	8	17	20	71½	15			
A. A. Hawke, do R.R. 3	do	16	10	8	15	22	71	1, 4, 15			
H. A. Lee, Victoria Harbor, R.R. 1	Golden Drop.....	14	17	7	14	18	70	15			
R. A. Walker, Coldwater, R.R. 3	O. A. C. 72.....	13	10	8	15	20	66	15, 1, 4			
NOTTAWASAGA AND GREAT NORTHERN AGR. SOCIETY.											
<i>Judge—Walter Baldock, Malton, R.R. 2.</i>											
D. Smith & Sons, Smithdale	Banner.....	17½	20	9	18	22½	87				
A. B. McArthur, Creemore, R.R. 2	O. A. C. 72.....	18	20	9	18	21½	86½				
M. Gadway, do R.R. 2	Banner.....	18	18	9	17	21½	83½				
D. McArthur, Collingwood, R. 1	O. A. C. 72.....	16	18	9	18	22	83				
D. L. Currie, Collingwood, R.R. 1	Abundance.....	16	17	9	18	22	82	15			
A. C. Morrison, Creemore, R.R. 2	O. A. C. 72.....	16	18	9	17	21	81	15			
G. W. Glover, Nottawa	Reg. Banner.....	16	17	9	17	21	80	1			
Geo. Spearing, Batteau, R.F.D.	O. A. C. 72.....	15	17	9	18	20	79	1			
J. A. McArthur, Creemore, R.R. 2	do	15	17	8	17	21	78	15			
Jno. Bailey, Collingwood	do	15	17	8	17	20	77	1			

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
TEMISKAMING.		(20)	(25)	(10)	(20)	(25)	(100)	
CHARLTON AGR. SOCIETY.								
<i>Judge—D. Smith, Smithdale.</i>								
O. Attwater, Charlton	Great Dane.....	17½	22	8	15	20	82½	
F. Pummell, do	do	15½	22	7	17	20	81½	
H. W. Netherton, Brentha	O. A. C. 72.....	16½	20	7	17	20	80½	
H. T. Kenny, Charlton, R.R. 2	Great Dane.....	17	20	7	16	20	80	
N. M. Fraser, do	New Sterling.....	15½	22	7	17	18	79½	
Jos. Kitts, do	O. A. C. 3.....	16	21	7	15	20	79	
T. Lacarte, Brentha	Abundance.....	15	22	7	14	16½	74½	
Wm. Netherton, do	Banner.....	14	20	6	18	16	74	
Geo. Gillett, do	Banner.....	14	20	7	14	16	71	
Bert. Nickerson, Charlton	O. A. C. 3	15½	18	8	10	17	68½	
COCHRANE AGR. SOCIETY.								
<i>Judge—J. B. Kaye, Bracebridge.</i>								
Geo. Hosmer, Cochrane	O. A. C. 72.....	17	24	9	18	21	89	
T. F. Traviss, do .....	.....	16	24	9	19	20	88	
M. Champagne, do .....	.....	16	24	8	17	20	85	
R. Nixon, do .....	.....	14	24	9	16	19	82	
A. Robillard, do .....	.....	15	24	9	15	18	81	
A. H. Newson, do .....	.....	14	23	9	16	18	80	
O. Charlufut, do .....	.....	13	24	8	18	14	77	
Wm. Chalmers, do	Imp. Scotch.....	13	20	8	16	19	76	
Neil, McPhee, do	Sensation.....	13	23	8	17	14	75	
Jos. St. Mom, do .....	.....	12½	24	8	12	18	74½	
A. Oyenet, do .....	.....	12½	24	9	10	18	73½	
F. Bradette, do .....	.....	12	23	7	17	13	72	
J. Bradette, do .....	.....	12	20	7	18	13	70	5
W. T. McCluskey, do .....	.....	10	24	7	10	13	64	
J. King, do .....	.....	11	16	8	12	15	62	
W. R. Gardner, do .....	.....	10	15	7	13	16	61	
J. M. Rumford, do .....	.....	10	20	4	8	13	55	
ENGLEHART AGR. SOCIETY.								
<i>Judge—D. Smith, Smithdale.</i>								
Wm. Hounslow, Marter	O. A. C. 72.....	18½	22	8	18	22½	89	
Jas. Harman, Heaslip	Banner.....	17½	18	9	18	21	83½	10
Geo. Stephenson, Englehart ..	Imp. Banner.....	15	22	8	18	20	83	
F. Kichna, Brentha	Banner.....	17	20	8	15	21	81	
John Allen, Heaslip	O. A. C. 72.....	16	20	9	16	18	79	15
R. H. Emrick, do	Banner.....	17	20	7	14	19	77	
A. W. Skinner, Englehart	do	14	20	7	18	17½	76½	
Ed. Scott, Heaslip.....	O. A. C. 72.....	14½	20	7	15	19½	76	
Thos. Woolings, Englehart ....	.....	15½	18	6	17	19	75½	17
Geo. Harman, Heaslip	Banner.....	15	18	7	16	19	75	
J. Hamilton, do	Sensation.....	15½	20	7	15	15	72½	15
E. Winlau, do	Lincoln.....	14	17	7	17	16	71	15, 17

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
		(20)	(25)	(10)	(20)	(25)	(100)	
TEMISKAMING.— <i>Continued.</i>								
MATHESON AGR. SOCIETY.								
<i>Judge—J. B. Kaye, Bracebridge.</i>								
R. S. Potter, Matheson		16	24	9	19	21	89	
C. Veitch, do		17	24	8	18	21	88	
C. Eidt, do	O. A. C. 3.	16	24	8	18	19	85½	
J. Mills, Wah Tay Beg	do	15	24	9	18	18	84	
W. Monahan, Matheson	O. A. C. 72.	16½	24	...	18	19	77½	
J. Wood, do	do	14	24	5	16	17	76	
F. Findlay, do		16	20	8	12	15½	71½	
N. Gibson, do	O. A. C. 72.	16	19	7	13	16	71	10
A. Teeks, do	O. A. C. 3.	16	18	8	12	16	70	
J. A. Cox, do		15	18	7	12	17	69	
F. Mulligan, do		13	18	8	13	16	68	
F. Russell, do		12	15	5	10	13	55	
THUNDER BAY.								
WHITEFISH VALLEY AGR. SOCIETY.								
<i>Judge—H. Knight, Jr., Sault Ste. Marie.</i>								
Jos. Witheshaw, Sr., Hymers		17½	22	8	19	22½	89	7
Geo. Hymers, Jr., do		17½	22	8	18½	22	88	
H. Wheal, do		15½	20	8	19	21½	84	
J. Pelto, Nolalu		14	23	8	19	19½	83½	
T. E. Hawks, South Gillies		15	21	8	19	20	83	7
Jas. Couch, Jr., do		12	21	8	18	21	80	1
H. P. Sisson, Hymers		15	20	7	16	20	78	8
John Harrie, Sellars		14½	21	7	16	19	77½	7
Jno. Jacobson, do		13½	12	8	16	17½	67	1, 15
VICTORIA.								
ELDON AGR. SOCIETY.								
<i>Judge—Adam Hood, Hagerman</i>								
Earl McKague, Woodville	O. A. C. 72.	16	23	8	17	20½	84½	4
A. Tolmie, do	R.R. 1 do	16½	22	8	18	19	83½	
R. P. Hill & Son, do	Storm King	16½	19	7	18	21	81½	4, 15
J. P. Wilson, do	Gar. Abundance	15½	20	8	17	20	80½	
F. Walters, do	Sheffield Standard	16	17	8	17½	21	79½	1
Jas. Thomas, do	O. A. C. 72.	15½	14	8	17	22	76½	15
W. G. Wilson & Sons, Woodville	Prince Royal	15	17	7	16	19½	74½	4
E. Brintnell, do	Newmarket	14½	18	7	16	18½	74	4
D. C. Ross, do	Irish	14½	15	7	18	18½	73	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.			Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	Yield and quality of grain.	Totals of scores.	†Weeds in competitors' fields.
VICTORIA.— <i>Continued.</i>				(20)	(25)	(10)	(20)	(25)	(100)	
EMILY AGR. SOCIETY.										
<i>Judge—Adam Hood, Hagerman.</i>										
D. H. Dick,	Omeme	.....	O. A. C. 72.....	17	23	8	18	22	88	15, 10
R. McQuade,	do	.....	do	16½	22	8	17	22	85½	10
A. J. White,	do	.....	Reg. Banner.....	16	16	7	18	21	78	
H. Miller,	do	.....	Gothland.....	15½	18	7	16	21	77½	15
Robt. Boyd,	do	.....	Reg. Banner.....	14	17	7	18	21	77	
R. H. Johnson,	do	.....	Reg. Abundance..	16½	16	7	17	20	76½	
F. G. Sandy,	do	.....	O. A. C. 72.....	15	16	7½	16	21	75½	
Geo. Griffin,	do	.....	Reg. Banner.....	15½	15	7	17	20	74½	1
I. H. Fee,	do	.....	Banner.....	14	16	7½	17	19½	74	15
Thos. Ingram,	do	.....	New Century.....	16	10	8	17	22	73	1, 4
A. Sanderson,	do	.....	Reg. Banner.....	15	15	7	15½	20	72½	1, 4
Geo. A. McQuade,	do	.....	O. A. C. 72.....	16	12	7	16	21	72	1, 15
Wm. Burgess,	do	.....	Sterling.....	14½	12	7	17	21	71½	1, 15
FENELON AGR. SOCIETY.										
<i>Judge—Milton W. Young, Woodrour.</i>										
A. Goodhand, Fenelon Falls ..			O. A. C. 72.....	18½	23½	9½	19½	21½	92½	
John Lean, Cameron, R.R. 2..			Yel. Russian.....	18½	22	8	20	23½	92	13
Wm. Gillies, Fenelon Falls			do	17	20	8	19½	23	87½	
Jno. Graham, do			do	17	20	8	19	22½	86½	15, 14
Geo. Isaac, do			do	17	14	6	19	22½	78½	1
Jno. Knox, do			do	16	14	8	18	21½	77½	
M. Moynes, Cameron, R.R. 1 ..			Early Derby.....	15½	14	8	18	21½	77	1, 15
J. H. Brandon, Fenelon Falls..			White Wave.....	15	15	8	14	18	70	
F. Smitheram, Cameron, R.R. 1			Irish.....	12	10	8	18	20½	68½	4, 15
Thos. Isaac, Fenelon Falls			Yel. Russian.....	15	10	7	17	18	67	1
VERULAM AGR. SOCIETY.										
<i>Judge—Milton W. Young, Woodrour.</i>										
M. M. Boyd & Co., Bobcaygeon			Banner.....	18½	23	9½	20	24	95½	
H. R. Seymour, do			Yel. Russian.....	17½	23	9	20	24	95½	
C. E. Logan, do			Banner.....	18½	22	8	19	23½	91½	14, 15
A. Thompson, Dunsford			O. A. C. 72.....	17	22	9	17	22½	87½	14
G. Kennedy, Bobcaygeon			Sensation.....	17	20	9½	17	22½	86	
R. T. Robertson, do			do	15½	23	9	16	22	85½	
R. E. Thurston, do			Northland.....	15½	20	8	20	21½	85	14
C. E. Junkin, do			O. A. C. 72.....	15½	18	8	19	21½	82	
Ross Kimble, do			Ligowa.....	17½	10	9½	20	22½	79½	4
Thos. Cosh, do			Yel. Russian.....	16½	12	7	19½	22½	77½	
M. & I. Thurston, Dunsford ..			Sterling.....	14	15	10	16	19½	74½	10
C. H. Thurston, Bobcaygeon ..			Yel. Russian.....	15½	12	8	19	14	68½	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
WELLAND.		(20)	(25)	(10)	(20)	(25)	(100)	
BERTIE AGR. SOCIETY.								
<i>Judge—John Gardhouse, Weston.</i>								
H. J. Miller, Bridgeburg	O. A. C. 72.....	20	22½	9½	20	25	97	14
Geo. Sexsmith & Son, Ridgeway, R.R. 2	Lincoln.....	19	24	9½	19	25	96½	
A. Merryweather, Bridgeburg, R.R. 1	Yel. Russian.....	19½	23½	9½	19	24	95½	
J. W. Jewson, Fort Erie, R.R. 1	O. A. C. 72.....	19½	23	9½	19	23½	94½	14
M. W. Sexsmith & Son, Ridgeway, R.R. 2	do	17	24½	10	19	23	93½	
C. Fritz, Fort Erie	Danish.....	18	23	9½	19	23	92½	
Wm. Woehl, Bridgeburg, R.R. 1	O. A. C. 72.....	18	23	9½	19	22½	92	15
J. R. Phillips, Fort Erie, R.R. 1	do	18½	22½	9	19	22½	91½	14
Chas. Baxter, do R.R....	Granary Filler...	18	23	9	19	21½	90½	15
G. W. Miller, Stevensville, R.R.	Irish.....	18	21	9½	19	22½	90	15
Maj. Jas. E. Laur, Bridgeburg, R.R. 1	O. A. C. 72.....	17½	22	9	18½	22½	89½	14
J. F. Miller, Stevensville, R.R. 2	do	18½	20	9	19	22½	89	14, 15
W. J. Wale, Bridgeburg	do	18	22	8½	17½	22½	88½	15
D. L. Hershey, Fort Erie, R.R. 1	New Century.....	18	20	9	19	22	88	14, 15
W. W. Bowen, Ridgeway	O. A. C. 72.....	16½	21	9	19	22	87½	14, 15
J. Lejeune, Fort Erie	Russian.....	16½	21	9	18	21½	86	15
FENWICK AGR. SOCIETY.								
<i>Judge—F. J. Jackson, Meadowdale.</i>								
P. J. Bea, Ridgeville, R.R. 1...	O. A. C. 72.....	18½	23	9	19	23	92½	
J. M. Haist, Fonthill	do	17	22	9	19	22	89	14, 15
Clemens Bros., Fenwick, R.R. 5	do	17	22	8	19	22	88	
J. H. Haist, do R.R. 5	do	17	21	7	19	22	86	15
C. F. Haist, Ridgeville, R.R. 1.	do	15½	22	8	18	21	84½	
W. L. Horton, Fenwick, R.R. 3.	do	14½	22	8	18	21	83½	14, 15
J. W. G. Crow, Ridgeville	Abundance.....	15½	20	8	17	21	81½	15
O. L. Beckett, do R.R. 1	Siberian.....	15½	20	7	17	21	80½	10, 15
J. L. Stirtzinger, Fenwick, R.R. 5	Banner.....	15½	18	8	17	21	79½	
J. M. Leppert, Ridgeville	Derby.....	15½	20	7	15½	21	79	14, 15
Geo. Weed, Fenwick, R.R. 5	O. A. C. 72.....	15½	18	7	17	20½	78	15
A. Marshall, do R.R. 3	do	14½	15	7½	18	21	76	14, 15
H. Stirtzinger, do	Sensation.....	15½	12	8	18	21	74½	10, 14, 15
H. W. Wills, do R.R. 3	Silver Mine.....	13½	18	6	16	20	73½	
R. Sauer, do R.R. 5	O. A. C. 72.....	12½	10	7	17	14	60½	14, 15
WELLAND COUNTY AGR. SOCIETY.								
<i>Judge—John Gardhouse, Weston.</i>								
F. G. Hutton, Welland	Banner.....	19	23½	9½	20	25	97	14, 15
P. L. Gram, Port Colborne, R.R. 1	O. A. C. 72.....	19½	24	9	20	24	96½	
Booth Bros., Niagara Falls, S., R.R. 2	do	19	23	9	20	24	95	14

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
WELLAND.— <i>Continued.</i>		(20)	(25)	(10)	(20)	(25)	(100)	
WELLAND COUNTY AGR. SOCIETY.								
— <i>Continued.</i>								
A. E. Howell, Fenwick, R.R. 5	O. A. C. 72.....	19	24	9	19	23½	94½	15
W. H. Crowther, Welland	do	18½	22	9½	20	24	94	
Roy Barren, Fonthill	do	18½	22	9½	20	23½	93½	15
C. W. Hagar, Pt. Robinson, R.R. 1	Banner.....	19	22	9½	19	23½	93	14, 15
L. Traver, Wellandport, R.R. 1	O. A. C. 72.....	18	23	9	19	22	91	14
M. Traver, Fenwick, R.R. 1 ...	do	18	21	8	19	23½	89½	15
C. V. Robbins, Wellandport, R. R. 1	Siberian.....	19½	17	9½	19½	23½	89	
F. A. Kottmeier, Port Robinson, R.R. 1	Banner.....	17½	21	9	19	22	88½	14, 15
N. Shafley, Wellandport, R.R. 1	Swedish.....	17½	22	8½	18	22	88	14
C. Rigg, do	Great Dane.....	17	21	8½	19	22½	88	
WELLINGTON.								
ARTHUR AGR. SOCIETY.								
<i>Judge—J. C. Duff, Tara.</i>								
Wm. Cook, Arthur	O. A. C. 72.....	19	24	9	19	24	95	12
P. Birns, do	Banner.....	18½	24	7	19	24	92½	
H. Cormack, do	O. A. C. 72.....	18½	20	8	19	24	89½	12
Wm. Hutchinson, do	Western.....	17½	18	8	19	24	86½	12
Jas. Bodendistle, Kenilworth ..	Banner.....	18	15	9	19	24	85	
W. J. Goulding, Arthur	O. A. C. 72.....	17	17	8	19	22	83	12
Jno. Bodendistle, Kenilworth..	Banner.....	17	15	9	19	21	81	
T. B. Farrell, Arthur	Amer. Banner....	14	20	7	17	22	80	10, 4
W. J. Berry, do	Silver Mine.....	16	15	8	18	20	77	
John McQueen, do	White Wave.....	13	15	8	18	19	73	
A. Flewelling, do	Silver Mine.....	14	15	7	17	19½	72½	8
D. Hill, do R.R. 1	Abundance.....	15	15	8	15	19	72	
J. Bowley, do	Banner.....	15	10	7	10	21	63	
CENTRE WELLINGTON AGR. SOCIETY.								
<i>Judge—J. W. Patton, Rocklyn, R.R. 2</i>								
Wm. Hutcheon, Rockwood, R.R. 1	O. A. C. 72.....	18½	24	9½	20	23½	95½	
W. Ransom, Fergus, R.R. 4 ..	Mammoth Cluster	18½	24	10	19	23½	95	15
J. L. Benham, Rockwood, R.R. 3	Abundance.....	18	23	9	19	22	91	15
Short Bros., Elora, R.R. 1....	do	18½	23	9	18	22	90½	15
John Lowe, do R.R.	O. A. C. 72.....	18½	20	8	19	23½	89	15, 10
James Ross, Fergus .....	.....	17½	22	8½	19	21	88	
R. C. Cumming, Elora, R.R. 1.	Granary Filler...	18	22	8	18	21	87	15
Wm. A. Atkinson, Fergus, R.R. 4	O. A. C. 72.....	17½	20	9	19	21	86½	
Chas. Mighton, Elora, R.R. 1..	Granary Filler...	16½	21	9	18	21½	86	15
Thos. Cox, Rockwood, R.R. 4.	Bumper.....	18	18	8½	19	22	85½	11
Wm. J. Connor, Elora, R.R. 2	O. A. C. 72.....	17	20	8	18	21	84	
J. H. Anderson, Fergus, R.R. 4	do	18	15	9½	17	23½	83	4, 14, 15
Jacob Dix, do Box 2	Irish.....	17½	19½	9	16	20	82	15
G. B. Pritchard, Elora, R.R. 1.	do	17½	15	9	17	22	80½	11, 15, 4, 14

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
WELLINGTON.— <i>Continued.</i>		(20)	(25)	(10)	(20)	(25)	(100)	
ERIN AGR. SOCIETY.								
<i>Judge—J. W. Patton, Rocklyn, R.R. 2.</i>								
S. W. Bingham & Sons, Hillsburg	Reg. Banner.....	19	24	9½	20	23½	96½	
G. D. Fletcher, Erin, R.R. 1..	O. A. C. 72.....	18½	23	9½	20	23½	94½	13
Jas. Milloy, do R.R. 1..	do	19	23	9	19	23½	93½	
E. Barbour, Hillsburg	do	17½	23	9½	19	22½	91½	
J. W. Burt & Sons, do	Ligowa.....	18	22	9½	19	22½	91½	
R. D. Nodwell, do	Reg. Banner.....	18½	22	9	19	22½	91	
M. Leitch, Guelph, R.R. 1....	O. A. C. 72.....	18	23	9	18	22	90	
F. McMillan, Hillsburg	Reg. Banner.....	18	21	9½	19	21½	89	14
Coke Bros., Erin	O. A. C. 72.....	18½	19½	9	18	22½	87½	
D. Gray, Hillsburg	do	17½	20	9½	19	21½	87½	15
H. L. Matheson, do R.R. 2	do	16½	22	9	18	21	86½	15, 13
Jno. McAlister, do	Sterling.....	17½	18	9	19	21½	85	15
Jno. Smith, Waldemar	Bumper King....	17	17½	9	18	22½	84	10, 15
R. Overland, Orton	Sterling.....	17½	17½	9	19	21	83½	15, 13
D. Barbour, Hillsburg	Banner.....	17½	16	9	18	22	82½	14
A. Brown, Erin	Irish Victor.....	16½	16	8	17	20	77½	14
MOUNT FOREST AGR. SOCIETY.								
<i>Judge—J. C. Duff, Tara.</i>								
Jas. McEachern, Holstein, R.R. 1	Siberian.....	18½	24	9½	19	23	94	
D. Murphy, Mt. Forest, R.R. 4	O. A. C. 72.....	19½	20	9	20	24	92½	2
A. Hutcheson, do R.R. 4	do	18	15	9	20	24	86	2, 15
W. J. Wallace, do R.R....	do	17	18	9	19	22	85	2, 15
Geo. W. Crow, Clifford, R.R. ..	Sterling.....	16	24	8	16	19	83	14, 15
Brown Bros., Mt. Forest, ...	O. A. C. 72.....	18½	15	8	18	23	82½	2, 15
J. D. Ross, do R.R. 1	do	19	10	9	20	24	82	2
Fred. Ross, do	do	19	10	9	20	23	81	2
Jas. S. Woods, do	do	18	10	8	19½	24	79½	2, 4, 10
J. D. Anderson, do R.R. 4	Banner.....	15	20	7	18	19	79	15
S. C. Campbell, Kenilworth ...	do	15	17	8	19	19	78	2, 10
Wm. Gillies, Mt. Forest, R.R. 2	Banner.....	16	10	8	19	22	75	2
S. Peckover, do R.R. 1	Rennie's Early							
	Yielder.....	16½	10	8	18	22	74½	2, 12, 1
PUSLINCH AGR. SOCIETY.								
<i>Judge—R. J. R. Shorthill, Georgetown, R.R. 1.</i>								
Alex. McLean, Puslinch, R.R. 1	O. A. C. 72.....	19½	24½	9½	20	24½	98	15
P. G. McLean & Son, do R.R. 1	do	18½	24½	9½	20	23½	96	15
W. Winer & Sons, Guelph, R.R. 3	do	18½	23	9½	20	23½	94½	15
D. A. McLean, Puslinch, R.R. 1	do	18	24	9	20	23	94	15
H. McCaig, Hespeler, R.R. 2..	do	17	23½	9½	20	23½	93½	15, 11
J. W. Kerr, Puslinch, R.R. 1..	do	18	23½	8	20	23½	93	15, 11
J. & G. W. Barclay, Guelph, R.R. 6	do	18	23	8	20	23½	92½	15, 14, 4

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	†Freedom from weeds.	‡Freedom from smut, blight and insects.	§Freedom from other varieties and other kinds of grain.	¶Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
		(20)	(25)	(10)	(20)	(25)	(100)	
WELLINGTON.—Continued.								
PUSLINCH AGR. SOCIETY.—Con.								
E. S. Shantz, Hespeler, R.R. 2.	O. A. C. 72	16	25	9½	19½	22	92	
J. A. Cockburn & Sons, Puslinch, R.R. 1	do	16	24	9½	20	22	91½	15, 13
N. Stewart, Morriston	Granary Filler...	16	22	9½	20	22	89½	15, 14
Geo. Ruber, Arkell	E. Alaska	17	21	9	18	24	89	13, 15, 2
Wm. Bond, Puslinch, R.R. 2..	Amer. Banner....	16	23	8	18	22	87	15
C. S. Nicholson, Guelph, R.R. 3	O. A. C. 72.....	12½	24	9	19	21½	86	15
J. E. Thomas, do R.R. 2	do	19	18	8	19	22	86	15, 11, 2
D. R. Clark, Puslinch, R.R. 1 ..	do	15½	23	9	18	20	85½	15
F. Paddock, Hespeler, R.R. 2..	Banner.....	16	19	9	18	22	84	15
Wm. Mast, Puslinch, R.R. 1 ..	20th Century....	14	19	9	17	20	79	15, 14
Rockwood Agr. Society.								
<i>Judge—R. J. R. Shorthill, Georgetown, R.R. 1.</i>								
A. & F. Auld, Guelph, R.R. 2..	Golden Rain.....	18½	23½	9	19	24	94	15, 14
C. H. Harris, Rockwood	O. A. C. 72.....	18	24	9½	20	22	93½	15
Jos. Graham, do R.R. 5	do	18½	23	9	20	22½	93	2, 13
A. McNabb, do R.R. 4	do	18	24	8½	19	22	91½	15
B. Tolton, Guelph, R.R. 4	do	19	18	10	19	24	90	2
N. McLean, Rockwood, R.R. 4.	do	18	24	9	12	24	87	15
C. Geroux, Guelph, R.R. 2	do	16	23½	8	18	21	86½	
L. B. MacDougall, Rockwood, R.R. 5	Empire.....	16½	23½	9	16	21	86	15
C. Benham, Rockwood, R.R. 5	Amer. Beauty....	16	23	8	17	21	85	13, 14, 15
W. A. Dickieson, do R.R. 1	O. A. C. 72.....	17½	15	8	18	22½	81	15, 2
Jno. McNabb, do R.R. 4	do	16	20	7	16	21	80	15, 14
Jos. Stovel, do R.R. 1	do	17	10	9	19	22	77	2, 13, 14
Jno. Cummins, do R.R. 3	do	16	10	9	20	21	76	2, 14, 15
Roy Allen, do R.R. 5	Bumper King....	12½	23	5	16	19	75½	14, 15
H. H. Black, do R.R. 4	O. A. C. 72.....	16½	15	7	13	22½	74	15, 14
WENTWORTH.								
ANCASTER AGR. SOCIETY.								
<i>Judge—R. H. Crosby, Markham.</i>								
N. W. Shaver, Ancaster	Abundance.....	18½	21	9	19½	23½	91½	15
J. S. Howell, Jerseyville, R.R. 1	O. A. C. 72.....	18	20	9	20	24	91	12, 15
G. Morton, Glanford, R.R. 3..	do	18	20	9	19	23	89	15
J. B. Calder, do R.R. 3..	do	18	20	9	19	22½	88½	14
W. E. Shaver, Ancaster	do	17½	20	9	18	23	87½	15
Bert Brown, do	do	18	20	8	18	22½	86½	15
Thos. Calder, Glanford, R.R. 3	O. A. C. 72.....	17½	17	9	19	21	83½	14, 15
F. W. Myers, Ancaster	Banner.....	17	20	8	17	20½	82½	14, 15
T. G. Brown, do	O. A. C. 72.....	15½	10	9	19	20½	74	1, 15
Jno. Moffatt, do R.R. 2	Banner.....	16½	10	9	17½	20½	73½	2, 10, 15, 4
E. Draper, Jerseyville, R.R. 1.	O. A. C. 72.....	16½	10	8	19	19	72½	15

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
		(20)	(25)	(10)	(20)	(25)	(100)	
WENTWORTH.—Continued.								
WEST FLAMBORO AGR. SOCIETY.								
<i>Judge—R. H. Crosby, Markham.</i>								
W. Lambier, Millgrove, R.R. 2.	O. A. C. 72.....	18	20	8	18	23½	87½	14, 15
Geo. Harris, do	do	15	20	9	18	21	83	15, 14
J. A. Gray, Freulton	Abundance.....	17	15	8½	18	22	80½	2, 15
Robt. Maes, Millgrove, R.R. 1.	.....	17½	15	9½	16	22	80	11, 14, 15
J. A. Bennett, Campbellville, R.R. 3	Granary Filler...	16	15	7	18	20	76	14, 15
Thos. George, Millgrove, R.R. 1	Lincoln.....	16½	8	10	18	23	75½	2, 15
H. Drummond, do R.R. 2	Abundance.....	15	10	9	18	22	74	15
G. W. Cummins, Puslinch, R.R. 3	Lincoln.....	16	15	9	10	21½	71½	1, 14, 15
Wm. Beaton, Hamilton, R.R. 2	do	16	10	7	17	20	70	14, 15
Robt. Manary, Freulton	Jewel.....	17½	5	9½	10	21	63	2, 14, 15
T. Goodbrand, Hamilton, R.R. 2	O. A. C. 72.....	14	.....	8	19	21	62	2, 15
YORK.								
RICHMOND HILL AGR. SOCIETY.								
<i>Judge—J. J. Virtue, Enniskillen,</i>								
J. Brillinger, Richmond Hill ..	O. A. C. 72.....	18	25	9	18	23½	93½	
R. W. E. Burnaby, Jefferson ..	do	17	24	9	19	23	92	4
Jas. Barker, Gormley, R.R. 1.	Prince Royal.....	17	23	7	18	23½	88½	4, 10
John Young & Son, Milliken ..	Yel. Russian.....	17	21	9	19	22	88	4, 2
F. A. Clark, Gormley, R.R. ...	Thousand Dollar.	14½	23	8	19	20	84½	4
A. Jones, Maple, R.R.	White Wave.....	14½	20	9	18	19½	81	4
M. McQuarrie, do	O. A. C. 72.....	13½	23	8	18	18	80½	10
F. A. Legge, Jefferson	do	15	20	8	16	20½	79½	4, 11
Wm. Brumwalt, Newtonbrook..	Plymouth.....	15	17	8	18	20	78	4, 10
C. N. Cooper, Richmond Hill..	Prince Royal.....	16	10	8	18	23	75	4, 2
Jas. McLean, do R.R. 1	Yel. Russian.....	15½	10	9	18	21½	74	2, 10
SCARBORO AGR. SOCIETY.								
<i>Judge—Andrew Elliott, Galt.</i>								
John Baird, Scarboro, R.R. ...	Abundance.....	17½	23	8	19	22½	90	
A. P. Wheeler, Agincourt, R.R. 1	Granary Filler...	19	20	9	18	23	89	
Wm. Loveless, Ellesmere	Banner.....	17	23	9	17	22	88	
Wm. G. Rennie, Agincourt	Lincoln.....	18½	22½	7	18	21½	87½	
Wm. A. Paterson, do	Giant Cluster....	15½	23	8½	18	22	86½	
H. Kennedy, do	Lincoln.....	16	22	9	18	21	86	
Geo. Fitzpatrick, Wexford	O. A. C. 72.....	16	23	8	18	20	85	
Robt. Stirling, Agincourt, ...	do	17	15	8½	18	22½	81	
A. E. Kennedy, do R.R. 1	Lincoln.....	16	14	9	20	22	81	2
Jas. Scott, Malvern	Cluster.....	17½	10	9	19	21	76½	2

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.		Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	Yield and quality of grain.	Totals of scores.	†Weeds in competitors' fields.
YORK.— <i>Continued.</i>			(20)	(25)	(10)	(20)	(25)	(100)	
SCHOMBERG AGR. SOCIETY.									
<i>Judge—J. J. Virtue, Enniskillen.</i>									
Palmer Bros., Schomberg	Imp. Banner.....	16½	17	9	20	21	83½	15	
R. Sinclair, Bradford	O. A. C. 72.....	15	20	9	18½	20	82½		
H. Amey, Lloydtown .....	.....	13	23	9	19	18	82	15	
Est. of Jno. McDonald, Bradford .....	.....	16½	18	8	18	21	81½	4	
S. Leonard, Schomberg .....	.....	13	24	9	17	18	81		
Jas. Cooper, do	O. A. C. 72.....	13	20	9	19	18	79		
F. Amey, Bradford .....	.....	15½	16	9	18	20	78½	4, 1	
Wm. Hanlon, Lloydtown .....	.....	14	16	9	18	18	75	15	
W. J. Johnston, Bond Head .....	.....	14½	20	9	10	20½	74	4	
G. Brown, Schomberg .....	.....	13	10	9	18	18	68		
WOODBIDGE AGR. SOCIETY.									
<i>Judge—J. J. Virtue, Enniskillen.</i>									
A. J. Witherspoon, Woodbridge	O. A. C. 72.....	18	25	9	18	23½	93½		
Jas. Bell, Elder's Mills	Banner.....	17½	20	9	19	23½	89	4	
R. T. Wood, Etobicoke	O. A. C. 72.....	16½	20	9	19	22	86½	15	
W. C. Dobson, Woodbridge	Ligowa.....	15½	24	8	17	21½	86		
A. C. McNeil, Maple	O. A. C. 72.....	15	23	9	19	19½	85½	10	
R. K. Johnston, Nashville	E. Normandy.....	15	22½	8	17	22	84½		
A. L. McNeil, Woodbridge	Abundance.....	14½	24	8	19	18½	84		
R. L. Robertson, do	Bumper King....	14	23	9	17	20½	83½	15	
A. Bagg, Edgeley	Liberty.....	16	20	9	18	20	83	4	
O. Beamish, Woodbridge	Bumper King....	17	10	8	17	23	75	4, 1	
A. W. Farr, do	do	14½	10	8	16	20½	69	4	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

FALL WHEAT.

Competitors in Order of Merit.		Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
LAMBTON.			(20)	(25)	(10)	(20)	(25)	(100)	
FLORENCE AGR. SOCIETY.									
<i>Judge—R. H. Harding, Thorndale.</i>									
Byron Walker, Bothwell, R.R. 1		Dawson's G. Chaff	19	20	8	17	21	85	16
Bert Harris, Thamesville, R.R. 1		Dawson's G. Chaff	17	20	7	18	22	84	4
Robt. Currie, Florence, R.R. 3		Niagara Red.....	16½	18	8	18	22	82½	4, 16
Walter Ralph, do R.R. 2		do	15	18	8	18	22	81	4
J. H. Powell, Shetland		Dawson's G. Chaff	16	16	8	17	21	78	16, 13, 14
Bodkin Bros., Thamesville, R.R. 2		Nigger.....	14½	18	8	17	19	76½	4, 16
Jno. D. Munroe, Florence, R.R. 2		Virginia Miracle.	14	17	7½	16	21	75½	16, 13
Russell Coutts, do R.R. 3		Nickel.....	15	15½	8	16	20	74½	16, 15
Orval Gould, Croton, R.R.		Dawson's G. Chaff	16	9	9	17	21	72	4, 16, 14
G. C. Childs, Florence, R.R. 3..		do	16	7	7	18	22	70	16, 4, 13, 14
W. S. Bodkin, Thamesville, R.R. 2		Virginia Miracle.	15	8	8	17	21	69	4, 16, 14
Douglas Moorehouse, Cairo		Dawson's G. Chaff	15½	4	8	18	22½	68	3
Wm. Leeson, Florence, R.R. 3		do	16	4	7	17½	22	66½	16, 4, 5
W. P. Forshee, do		do	16	4	7	17	22	66	16, 4, 14, 13
Jno. Gould, Croton, R.R. 2		do	16	3½	9	17	20	65½	4, 16, 14
Thos. Skinner, do R.R. 1		do	16	4	8	17	20	65	4, 16, 14
Wm. Gould, do R.R. 1		100 Mark.....	12	8	8	18	17	63	16, 4, 15, 14
Wm. McIntosh, Thamesville, R. R. 2		Dawson's G. Chaff	13	3	8	18	19	61	13, 16, 4
PERTH.									
KIRKTON AGR. SOCIETY.									
<i>Judge—R. H. Harding, Thorndale.</i>									
Wesley Shier, Woodham		Dawson's G. Chaff	18	10	9	18	24	79	1
Wilfrid Doupe, Kirkton		Abundance.....	17½	14	9	17	21	78½	1, 16, 14
Arthur Gunning, do		Dawson's G. Chaff	18½	12	6	18	22½	77	1, 14
Jas. Moore, do		do	17	12	7	18	22	76	1, 16
Jno. Urquhart, St. Mary's, R.R. 1		do	16	16	6	16	21	75	15, 16, 14
Robt. Ratcliffe, do R.R. 1		do	17	10	7½	18	22	74½	1, 15, 14
Percy Sparling, do R.R. 1		Abundance.....	14	14	8	17	20½	73½	3, 15, 14, 1
Ed. Copeland, Woodham		do	16	15	6	15	19½	71½	14, 16
Wm. Denham, Kirkton		Dawson's G. Chaff	16½	7	8	17	21½	70	1, 14, 16
Wm. Ratcliffe, do		do	15½	6	9	17	21	68½	1, 15
Albert Switzer, Granton		do	16	8	6	17	21	68	16, 14, 1
R. Hazelwood, St. Mary's, R.R. 1		do	14	10	7	16	20	67	14, 16, 4
Adam M. Doupe, do R.R. 6		do	13	9	5	18	21	66	1, 14, 16
Harry Armstrong, Science Hill.		do	15½	5	7	16	22	65½	16, 10, 1, 13
Wm. Harding, Kirkton		do	12	9	7	16	19½	63½	14, 1, 16

*General appearance—Considering stand of crop, type of plant, vigor and uniformity of growth, method of seeding and absence of lodging.

†Yield and quality of grain—Considering proportion of well-filled heads of plump grain of good quality and uniformity of maturity.

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

FALL WHEAT.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	*Weeds in competitors' fields.
		(20)	(25)	(10)	(20)	(25)	(100)	
VICTORIA.								
VERULAM AGR. SOCIETY.								
<i>Judge—Jas. Boyd, Pickering, R.R.</i>								
D. Hetherington.	Bobcaygeon ..	Sleep and I'll pay the Rent.....	17	23	10	19	23	92 15
G. W. Dick,	do ..	do	17	23	9	19	22	90 14, 15
Arch. Campbell,	do ..	Dawson's G. Chaff	16	24	9	19	21	89 15
H. R. Seymour,	do ..	Sleep and I'll Pay the Rent.....	16	21	9	19	23	88 4, 15, 10
Ernest Irwin,	do ..	do	16	21	9	18	23	87 10, 15, 14
T. H. Martin,	do ..	do	15	21	9	18½	23	86½ 4, 3, 15
M. M. Boyd & Co.,	do ..	do	15	21	9	19	22	86 10, 4
El. J. Long,	do ..	do	15	22	8	19	21	85 4, 15
Chas. Thurston,	do ..	Dawson's G. Chaff	14	20½	8	19	22	83½ 14, 15
Geo. Kimble,	do ..	Sleep and I'll Pay the Rent.....	14	21	9	19	20	83 4, 15
R. T. Robertson,	do ..	do	14½	18	9	19	22	82½ 1, 4, 15
R. E. Thurston,	do ..	do	14	19	9	19	21	82 1, 14
Ross Kemble,	do ..	do	14	20	7	18	21	80 15, 4
WATERLOO.								
SOUTH WATERLOO AGR. SOCIETY.								
<i>Judge—J. A. McDermid, Batteau, R.R.</i>								
I. Hilborn, Roseville	Dawson's G. Chaff	16½	21	9	16	18	80½	14, 16
Wm. Johnstone, Galt, R.R. 7	do	15	22	8	17	17½	79½	14, 15
J. B. Cowan, do R.R. 7	do	14½	21	8½	18	16½	78½	
Thos. Young, do R.R. 4	do	13½	21	8	18	17½	78	9
Alex. Hall, Ayr, R.R. 3	do	13½	20	8	19	17	77½	15, 16
Lawrence Fried, Roseville	do	15	21	8	16	17	77	15
R. & D. Arthur, Branchton, R.R. 1	do	13½	20	8½	18	16½	76½	
Jno. McKenzie, Galt, R.R. 3	do	12	21	9	18	16	76	15, 9
Swan Taylor, do R.R. 4...	do	15	20	7½	16	17	75½	15, 16
Menno Bechtel, Preston	Michigan Amber..	15	21	7	14	17	74	
A. S. Clemens, Hespeler, R.R. 1	Dawson's G. Chaff	14	20	7	15	17	73	
Geo. P. Moore, Galt, R.R. 7	do	14	20	7	14	17	72	
H. L. Jones, Hespeler	do	11½	21	8	15	16	71½	
Geo. J. Ford, Galt, R.R. 7	Michigan Amber..	16	20	8	10	17	71	
Jno. McDonald, Branchton	Golden Jewel.....	13½	19	7	15	16	70½	3
J. G. Dryden, Galt, R.R. 7	do	12½	20	8	14	16	70½	16
Ed. Moyer, Preston, R.R. 2	Michigan Amber..	13½	18	7	14	16	68½	9
Morse Eaton, Hespeler, R.R. 1.	Golden Jewel.....	11½	19	8	14	15	67½	
Edwin S. Kenkes, Branchton ..	Dawson's G. Chaff	11½	19	6	16	14	66½	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

FALL WHEAT.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
WELLINGTON.		(20)	(25)	(10)	(20)	(25)	(100)	
PUSLINCH AGR. SOCIETY.								
Judge—J. A. McDermid, Batteau, R.R. 1.								
J. A. Cockburn & Sons, Puslinch, R.R. 1	Dawson's G. Chaff	13 $\frac{1}{2}$	21	8	18	16 $\frac{1}{2}$	77	9
Alex. McLean, Puslinch, R.R. 1	Michigan Amber.	14	20	7	17	17	75	16, 3
J. & G. W. Barclay, Guelph, R.R. 6	White Jewel.....	13 $\frac{1}{2}$	19	7	17	16	72 $\frac{1}{2}$	9, 14
Jas. Clark, Puslinch, R.R. 1...	Michigan Amber.	13	15	7	19	17	71	9, 16, 14, 3
Wm. Mast, do R.R. 1...	do	12	19	7	16	16	70	16
H. McCaig, Hespeler, R.R. 2 ..	White Jewel.....	12	18	7	16	15	68	
Jno. Penrier, Puslinch	Mogul.....	13 $\frac{1}{2}$	17	7	14	16	67 $\frac{1}{2}$	9, 15, 13
R. E. Paddock, Hespeler	Dawson's G. Chaff	11 $\frac{1}{2}$	14	7	16	14	62 $\frac{1}{2}$	9, 16
Wm. Winer & Sons, Puslinch, R.R. 3	do	11 $\frac{1}{2}$	12	7	16	14	60 $\frac{1}{2}$	9

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

SPRING WHEAT.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' field.
CARLETON.		(20)	(25)	(10)	(20)	(25)	(100)	
FITZROY AGR. SOCIETY.								
<i>Judge—W. Hickson, Bobcaygeon.</i>								
J. L. Hunt, Kinburn	Marquis.....	16½	23	9	19	24	91½	15, 10
J. E. Armstrong, do	do	17	21	8½	20	23½	90	4, 14
P. M. Herrick, Galetta	do	15½	22	9½	17½	23½	88	4
F. R. Gourlay, Kinburn	White Fife.....	18½	15	9	19	24	85½	1, 15
Hartley Miller, Galetta	do	15	19	10	19	21	84	4, 10, 15
H. E. Miller, Arnprior	do	14½	21	8	18	22	83½	4, 15, 10
A. J. Halpenny, Galetta	Marquis.....	16	15	10	19	22	82	4, 10, 8
Lawson Stewart, Arnprior	Red Fife.....	13½	18	10	18	21	80½	15
D. Croskery, Kinburn	White Fife.....	16	13	8	15	24	76	2
E. O. Wilson, do R.R. 1	Marquis.....	17½	....	10	19	25	71½	1
J. W. Smith, do	do	16	....	9½	19½	22½	67½	1
DURHAM.								
PORT HOPE AGR. SOCIETY.								
<i>Judge—R. Murphy, Alliston.</i>								
R. G. Holdsworth, Cobourg, R.R. 4	Marquis.....	18	20	9	19	23	89	4, 15, 10
R. L. Holdsworth & Son, Pt. Hope	do	15½	22	9	19	21½	87	4
E. J. Symons, do	Colorado.....	17	17	9	19½	22	84½	4, 2, 15
R. J. Crowhurst, do	do	16½	18	9	19	21	83½	2, 4, 15
Norman Wilson, Perrytown	do	15½	21	8½	18	20	83	4, 15
J. H. Boswell, Port Hope, R.R. 3	Farmer's Favorite	17	12	9	18	22	78	2, 15
Thos. Coyte, do	Colorado.....	17½	10	9	18	22	76½	1, 4, 15
A. E. Meadows, do	Red Fife.....	17½	8	9	18½	23	76	4, 15
Milton G. Welch, do	Colorado.....	15½	14	9	17	20	75½	1, 4
PRESCOTT.								
ALFRED AGR. SOCIETY.								
<i>Judge—G. W. Davidson, Kemptville.</i>								
F. Daoust, Alfred	Red Fife.....	17	17	8	18	23½	83½	4
F. X. Cadieux, L'Original	do	16	20	8	18	21	83	2, 17
A. Charbonneau, Alfred	do	14½	20	8	18	22	82½	4, 2
A. Daoust, do	do	15½	17	7½	18	22	80	4, 15
M. Leroux, N. Plantagenet	do	15	12	8	18	23	76	2, 4, 10
Dr. N. Gaboury, Alfred	do	15½	16	7½	17	19	75	4, 2
Sam. Parisien, do	White Fife.....	13	15	7	18	21½	74½	4, 2
J. B. Gratton, do	Red Fife.....	14	15	8	17	19	73	4, 15, 17, 14
And. Blondin, Plantagenet	White Fife.....	12	15	8	18	13	66	4, 10, 12
F. Daoust, L'Original	Red Fife.....	11½	15	6	12	19	63½	5, 4, 16, 2
Jos. Robillard, Alfred	do	12	8	6	15	18	59	4, 5, 2, 16

*General appearance—Considering stand of crop, type of plant, vigor and uniformity of growth, method of seeding and absence of lodging.

†Yield and quality of grain—Considering proportion of well-filled heads of plump grain of good quality and uniformity of maturity.

NOTE.—The figures in parenthesis at the top are maximum possible scores.

‡See key page.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

SPRING WHEAT.

Competitors in Order of Merit.			Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
RAINY RIVER.				(20)	(25)	(10)	(20)	(25)	(100)	
RAINY RIVER VALLEY AGR. SOCIETY.										
Judge—Henry Knight, Sault Ste. Marie.										
Jas. Brigham, Emo	.....	Marquis	.....	16½	23	8	19	23	89½	
C. J. Lingquist, Aylsworth	.....	do	.....	17	21	7	17	23½	85½	15
Chas. Fisher, Emo	.....	do	.....	16	21	9	18	21	85	15
R. T. Corrigan, do	.....	do	.....	16½	19	9	18	21½	84	15
David J. Allen, do	.....	do	.....	17	15	9	18	22	81	1
Oswald Cameron, do	.....	do	.....	14½	18	9	18	21	80½	15, 2
Alex. Henry, Big Fork	.....	do	.....	17	14	8	18	22½	79½	7, 3, 1, 15
R. W. McEachern, Emo	.....	do	.....	16	15	9	18	21	79	1, 2
Ed. Tompkins, do	.....	do	.....	15	20	8	16	19½	78½	9
Wm. Jewell, Big Fork	.....	do	.....	17	16	7	16	22	78	2
A. J. Locking, Emo	.....	do	.....	15	15	8	15	20½	73½	9, 15, 2
Wm. MacMillan, do	.....	do	.....	16	10	8	16	23	73	2, 1
F. W. Tummev, do	.....	do	.....	15	12	7	16	21½	71½	1, 15, 9
Wm. Corrigan, do	.....	do	.....	13	10	8	17	18	66	2, 15
Ed. Mowes, do	.....	do	.....	15	....	8	18	21	62	2, 1, 7, 15
RENFREW.										
COBDEN AGR. SOCIETY.										
Judge—J. D. McLennan, Lancaster, R.R. 1.										
A. Johnston, Cobden, R.R. 4	.....	Marquis	.....	19	25	8	18	23	93	
Peter Wilson, do R.R. 3	.....	Marquis	.....							
		Registered	.....	19	20	9	18	24	90	10
D. McEwan, do	.....	Marquis	.....	18	21	8	19	23	89	12
W. J. Oates, do R.R. 1	.....	do	.....	16	24	9	18	21	88	16
S. McLaren, do	.....	do	.....	19	22	7½	17	22	87½	1
A. J. Connelly, do	.....	do	.....	17	22½	8	17	22	86½	1, 12, 2
Geo. McDiarmid, do R.R. 1	.....	do	.....	16	20	8	18	23	85	2, 12, 10
A. McBride, do R.R. 1	.....	do	.....	16	20	9½	18	21	84½	
A. Ross, do R.R. 1	.....	do	.....	16	20	8	19	21	84	4, 12
C. Purcell, do R.R. 3	.....	do	.....	15	20	9	18	21	83	2
Jos. Edwards, do R.R. 3	.....	do	.....	15	24	9	18	16	82	
J. C. Bulmer, do R.R. 3	.....	do	.....	15	17	8	18	23	81	12, 4, 1
M. Pettigrew, do R.R. 1	.....	do	.....	16	19	8	17	19	79	4
Russell Moore, do R.R. 1	.....	do	.....	14	20	9	17	18	78	12
Wm. Morrison, do R.R. 1	.....	do	.....	15	15	8	16	19	73	2, 12
NORTH RENFREW AGR. SOCIETY.										
Judge—W. Hickson, Bobcaygeon.										
Wm. H. Metcalfe, Beachburg	.....	Marquis	.....	19	22	10	17	24	92	15
Robt. Bennie, do R.R. 1	.....	do	.....	15	24	10	19	22½	90½	
T. A. Buchanan, do	.....	do	.....	17	22	8	19	23½	89½	
Jno. Stevenson, do R.R. 2	.....	do	.....	14½	23	10	19½	22	89½	15
Harris Brown, do	.....	do	.....	17½	20	10	18	23½	89	8
Amos Bulmer, Westmeath	.....	do	.....	15½	24	9	19½	20½	88½	15

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

SPRING WHEAT.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	Yield and quality of grain.	Totals of scores	Wrecks in competitors' fields.
RENFREW.— <i>Continued.</i>		(20)	(25)	(10)	(20)	(25)	(100)	
NORTH RENFREW AGR. SOCIETY. — <i>Continued.</i>								
Jos. Keyes, Westmeath, R.R. 2	White Fife.....	16½	22	8	19	23	88½	15
Alex. Barr, Beachburg, R.R. 1..	Marquis.....	15½	20	10	19	23½	88	10
T. H. Collins, Westmeath, R.R. 2	White Fife.....	17½	20	10	16	24	87½	3
Jos. Valliant, Beachburg	Red Fife.....	16	23	10	16	22	87	15
Jno. A. Brown, do	Marquis.....	15	20	10	18	22½	85½	5
Wm. Headrick, do	do	16	18	10	18½	22	84½	15, 10
R. S. McClelland, do	White Fife.....	16½	21	8	17	21½	84	15
S. McCagherty, Westmeath ...	do	16½	18	7	19	22	82½	4
Herb. Comrie, Beachburg	Marquis.....	15½	10	10	19½	22½	77½	10
Jas. W. Buchan, do	do	19½	....	9½	19	24	72	4, 10, 1
Wm. P. Robertson, do R.R. 1	do	16½	....	8½	17	22½	64½	4, 1, 10
R. A. Fraser, Forester's Falls, R.R. 2	White Fife.....	12	....	8½	12	22	54½	4, 1
RENFREW AGR. SOCIETY. <i>Judge—J. D. McLennan, Lancaster, R.R. 1.</i>								
Walter Galbraith, Renfrew, R.R. 3	Marquis.....	16	22	9	19	22	88	
J. B. McLaren, do	White Fife.....	17	21	9	18	21	86	
R. B. Leitch, do R.R. 3	Marquis.....	17	22	9	17	20	85	2
P. H. Bolger, do R.R. 2	White Fife.....	16	24	9½	16	19	84½	
G. McIntyre, do	do	17	21	7	17	22	84	12
J. F. Blane, do	do	17	22	6	17	21	83	
G. A. Peever, do R.R. 3	Marquis.....	17	20	8	15	22	82	4, 13
Lewis Galbraith, do R.R. 3	do	12	22	10	18	19	81	
D. B. Stewart, do R.R. 5	do	16	20	9	17	18	80	1
Jas. Fraser, Newfield, R.R.	White Fife.....	18	18	8	16	19	79	2
Cam. McGregor, Renfrew, R.R. 1	do	14	20	8	17	19	78	
W. Kasuboski, do R.R. 5	Marquis.....	17½	20	9	10	21	77	3
Allan H. Francis, do R.R. 2	do	15	17	8	17	19	76	2, 13
Alex. Fraser, do R.R. 3	White Fife.....	15	10	7	16	18	66	1, 16, 13
TEMISKAMING,								
NEW LISKEARD AGR. SOCIETY. <i>Judge—P. R. Owens, Powassan.</i>								
Robt. Jellie, New Liskeard	Marquis.....	18½	22	10	19	24	93½	
Jno. McFarland, do	do	17½	22	10	19	24	92½	
S. Jewel, do	do	19½	23	8	18	23½	92	15
R. D. Chester, do R.R. 1	do	19	22	10	17	23	91	15, 12, 4
E. F. Stephenson, do	do	18½	20	10	18	24	90½	4, 15
F. Alderice, Hanbury	do	18	23	10	15	24	90	15, 12
Liscar Scott, Uno Park	do	17½	22½	9	18	20	87	
Bruce Kerr, New Liskeard	Red Fife.....	16	20	7	19	23	85	12
Jno. Gray, do	Marquis.....	16½	19	9	18	21½	84	12, 15
D. MacKay, do	do	17	20	9	16	21	83	12, 15
Jas. Carter, do	do	16	18	9	18	21½	82½	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

SPRING WHEAT.

Competitors in Order of Merit.		Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
YORK.			(20)	(25)	(10)	(20)	(25)	(100)	
MARKHAM AGR. SOCIETY.									
Judge—A. V. Mitchener, O. A. C., Guelph.									
Arthur Petch, Milliken	Goose.....	19	19	8 $\frac{1}{2}$	17	23	86 $\frac{1}{2}$	2,4	
Jno. Young & Sons, Hagerman	do	16 $\frac{1}{2}$	22	8 $\frac{1}{2}$	15 $\frac{1}{2}$	23 $\frac{1}{2}$	86	15	
W. P. Johnson, Stouffville	do	14 $\frac{1}{2}$	22 $\frac{1}{2}$	8	18	22	85		
Jno. Boynton, Gormley, R.R. 2	do	15 $\frac{1}{2}$	19	8 $\frac{1}{2}$	18 $\frac{1}{2}$	23	84 $\frac{1}{2}$	12	
Mrs. Geo. Batt & Sons, Stouffville, R.R. 1	do	12 $\frac{1}{2}$	21 $\frac{1}{2}$	8	17	22	81		
Jos. Lapp & Son, Markham	do	18 $\frac{1}{2}$	16	7 $\frac{1}{2}$	16	22 $\frac{1}{2}$	80 $\frac{1}{2}$	2,15	
Jno. Hood, do R.R. 2	do	15	17	9	16	23	80	4	
H. Hargrave, Stouffville, R.R. 1	do	13 $\frac{1}{2}$	20	8	17	21	79 $\frac{1}{2}$	15	
Jas. J. Gleeson, Mountjoy	do	14 $\frac{1}{2}$	18	8	17	21 $\frac{1}{2}$	79	2,12,4,15	
Jas. A. Macklin, Milliken	do	19 $\frac{1}{2}$	8	9	18	24	78 $\frac{1}{2}$	2,10	
Geo. Robb, Markham	do	16 $\frac{1}{2}$	13	8 $\frac{1}{2}$	18	22 $\frac{1}{2}$	78 $\frac{1}{2}$	2,15,4	
R. S. Frisby, Unionville	do	15 $\frac{1}{2}$	14	8 $\frac{1}{2}$	17	23	78	1,15,11,4	
J. Gibson, Milliken	do	15	17 $\frac{1}{2}$	8	18	19	77 $\frac{1}{2}$	10	
Rus. Johnson, Stouffville, R.R. 1	do	15 $\frac{1}{2}$	15	8	16	23	77 $\frac{1}{2}$	2	
R. A. W. Wilson, Todmorden ..	do	16	20	8	12	21	77	4	
Fred. J. Baggs, Unionville	do	14 $\frac{1}{2}$	15	7 $\frac{1}{2}$	17	22	76	15,2	
D. F. Miller, Mountjoy	do	13	17	7	16	22 $\frac{1}{2}$	75 $\frac{1}{2}$	2	
Jas. Rennie, Milliken	do	17	10	7	18	22 $\frac{1}{2}$	74 $\frac{1}{2}$	2	
R. B. Ormerod, Brown's Cors. ..	do	17	8	9	17	23	74	2,15	
E. J. Appleton, Unionville	do	16	18	8	10	21	73	15,4	
J. B. Gould, Markham	do	14 $\frac{1}{2}$	8	8 $\frac{1}{2}$	18	24	73	2,15,13,4	
Archie McKinnon, Unionville ..	do	17 $\frac{1}{2}$	8	9	15	23	72 $\frac{1}{2}$	2,15,4	
L. A. Myers, Todmorden, R.R. 1 ..	do	18 $\frac{1}{2}$	12	9	10	23	72 $\frac{1}{2}$	2,15,4	
Jno. Balsdon, Markham	do	17	9	7	15	24	72	2,15,4	
Wm. J. Cowie, Locust Hill	do	16 $\frac{1}{2}$	8	9	15	23	71 $\frac{1}{2}$	2,15	
David Reesor, Markham, R.R. 2 ..	do	17 $\frac{1}{2}$	9	9	12	23	70 $\frac{1}{2}$	2	
Tom Lilley, do R.R. 2	do	15	18	7	10	20	70		
Geo. Newberry, Stouffville, R.R. 1 ..	do	13	8	8 $\frac{1}{2}$	17	23	69 $\frac{1}{2}$	2,15	
Harry Hammond, Unionville	do	14	7	8 $\frac{1}{2}$	17 $\frac{1}{2}$	22	69	2,1,15,4	
Alex. Douglas, Markham	do	14 $\frac{1}{2}$	8	8	16	22 $\frac{1}{2}$	69	2,15,4	
J. Thomson, Gormley	do	13 $\frac{1}{2}$	10	8	18	19	68 $\frac{1}{2}$	2,1,4	
Wm. Harper, Hagerman	do	15	6	9	15	22 $\frac{1}{2}$	67 $\frac{1}{2}$	4,2,15,1,10	
W. D. Forster, Markham	do	14	8	8	17	20 $\frac{1}{2}$	67	2,15	
Jno. Thomas, do	do	14	9	9	15	20	67	2,15	
Howard Malcolm, Locust Hill	do	13	7	8	16	22	66	2,15,13,4	
Jas. Jarvis, Markham, R.R. 2 ..	do	15	5	9	11	23	63	2,15,4	
J. W. Warriner, do R.R. 2	do	14	....	8 $\frac{1}{2}$	18	22	62 $\frac{1}{2}$	2,1	
Frank Williamson, do	do	11 $\frac{1}{2}$	6	7 $\frac{1}{2}$	15	22	62	2	
P. H. Reesor, do	do	12 $\frac{1}{2}$	4	6	14	18	54 $\frac{1}{2}$	2,3,15	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

BARLEY.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
BRANT.		(20)	(25)	(10)	(20)	(25)	(100)	
ONONDAGA AGR. SOCIETY.								
<i>Judge—Jas. McLean, Richmond Hill.</i>								
Thos. Thompson, Cainsville	O. A. C. 21.....	16½	23	9	18½	22½	89½	15, 14
Geo. Simpson, do R.R. 1	do	16	21	9	19	21	86	15
Francis Thompson, do	do	15	21½	8½	17½	22½	85	13, 14
H. Preiss, Middleport, R.R. 1..	Preiss Surprise...	16	21	9½	17	21	84½	15
Harold Howell, Cainsville	O. A. C. 21.....	15½	20½	8	19	20	83	14, 15, 4
C. W. Burrill, do	do	15½	15	9	19½	23½	82½	10, 5
A. W. Vansickle, Onondaga	do	14½	19½	8½	18	21½	82	14, 5
Geo. Thomson, Cainsville	do	14	20	7½	18½	21½	81½	13, 14, 15
Geo. Woods, do	do	15½	16½	8½	18½	21	80	4, 14, 15
D. B. Campbell, do	do	13½	20	7½	18	20½	79½	15, 4
Jas. Pate, Paris, R.R. 4	do	17	18½	9	12	22½	79	15, 14
Chas. Edwards, Onondaga	do	16	15	8½	16½	21½	77½	5, 14, 10
David T. Thomson, Cainsville..	do	16½	8	9	19	22	74½	15, 4, 13, 14
Arthur Mitchell, Caledonia, R.R.2	do	16	12	9	16½	20½	74	14, 5, 15, 2
Papple Bros., Brantford	do	17	....	9	16	21½	63½	5, 14, 15, 10
Hilton Hird, Cainsville	do	14	....	7	15	18	54	1, 4, 15, 14
BRUCE.								
EASTNOR AGR. SOCIETY.								
<i>Judge—R. W. Zavitz, Ilderton, R.R. 2.</i>								
Albert Bray, Lion's Head, R.R. 1	O. A. C. 21.....	18½	21	9½	19	23½	91½	
Jos. Bray, do R.R. 1	do	16½	23	9	17	22½	88	
Harry Harding, do R.R. 1	do	17	23½	9	19	16	84½	
Finley Cameron, do R.R. 1	do	15	24	9½	18	10	76½	15
Wm. Bray, Jr., do R.R. 1	Mandscheuri.....	15½	16	9	15	20½	76	15, 1
A. Mielhausen, do R.R. 1	do	17½	17	7	14	20	75½	15, 4
M. S. London, do R.R. 1	do	15	18	9	12	19	73	14, 5, 15
HURON TP. AGR. SOCIETY.								
<i>Judge—R. W. Zavitz, Ilderton, R.R. 2.</i>								
Jos. Colling, Ripley, R.R. 1	O. A. C. 21.....	16½	23	9	17	22½	88	15
W. C. Smith, do R.R. 1	do	16½	21	9	13	21½	81	15
W. D. Bradley, do R.R. 1	do	12½	22	9	17	16	76½	15
Jno. H. Reed, do R.R. 1	do	17	8	8½	17	21½	72	1, 15
I. L. Bowers, do R.R. 1	Mandscheuri.....	12½	22½	9	19	5	68	15
R. H. Reid, do R.R. 1	O. A. C. 21.....	15	5	9	16	20½	65½	1, 4, 15
Robt. Geddess, do R.R. 1	do	17½	5	9	13	20	64½	1, 14, 15

*General appearance—Considering stand of crop, type of plant, vigor and uniformity of growth, method of seeding and absence of lodging.

†Yield and quality of grain—Considering proportion of well-filled heads of plump grain of good quality and uniformity of maturity.

NOTE.—The figures in parenthesis at the top are maximum possible scores.

‡See key page.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

BARLEY.

Competitors in Order of Merit.	*Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
BRUCE.— <i>Continued.</i>		(20)	(25)	(10)	(20)	(25)	(100)	
HURON TP. AGR. SOCIETY.— <i>Con.</i>								
Alex. McMurchy, Ripley, R.R. 1	O. A. C. 21.....	14	6	8½	12	17	57½	1,14,15
Dan. Finlayson, do R.R. 4	.....	12½	16	9	4	15½	57	14,15
Jno. McCharles, Lucknow, R.R. 6	Mandscheuri.....	13	5	8½	13	17	56½	2,14,15
W. J. Roulston, do R.R. 6	O. A. C. 21.....	12	2	8½	13	13½	49	1,4,14
HALTON.								
MILTON AGR. SOCIETY.								
<i>Judge—Jas. McLean, Richmond Hill.</i>								
Jas. McDowell, Hornby	O. A. C. 21.....	18	17½	9	18	23	85½	14,15,4,1
E. Readhead, Milton, R.R. 2	do	16½	17	9	18	22½	83	15,14,2
Robt. Bush, do R.R. 2	do	16½	18½	9	16½	22	82½	2,14
Wm. Hume, do R.R. 6	do	17	18	7	17½	22½	82	2
J. H. Wilson, do	do	17½	12½	9½	15	21½	76	2,15
Sam. Harrop, do	do	16	11	8½	18½	20½	74½	2,14,15
Homer Dixon, do	do	16½	9	9	17	22	73½	14,15,10,2
J. W. Elliott, do	do	14½	5	9	14	20½	63	14,15,2
Harry Richardson, do R.R. 2	do	13½	5	9	12	21	60½	15,4,14,10
HASTINGS.								
FRANKFORD AGR. SOCIETY.								
<i>Judge—L. Dillabough, Chesterville, R.R. 2.</i>								
D. J. Rose, Frankford	O. A. C. 21.....	18	23	8	19	23	91	10
C. H. Ketcheson, Belleville, R.R. 2	do	18	22	8	19	23	90	10
Milton Vanderwater, do R.R.	do	18	22	8	18	23½	89½	
B. W. Meyers, Trenton	Mandscheuri.....	18	22	8	18	23	89	10
H. J. Gay, Frankford	O. A. C. 21.....	18½	21	8	18	23	88½	10,1
D. E. Coon, do	do	18	21	8	18	23	88	1
Sam. Nicholson, do	Mandscheuri.....	18	21	8	17½	23	87½	10
C. H. Vanderwater, Foxboro	O. A. C. 21.....	18	21	8	17	23	87	10
Reuben McMurtie, Frankford ..	Mandscheuri.....	17	21	8½	17	23	86½	1
F. R. Mallory, do	O. A. C. 21.....	17	21	8	17	23	86	15,10

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

PEAS.

Competitors in Order of Merit.			Name of variety.	*General appearance.	Freedom from weeds.	Freedom from disease and insects as mildew, blight, weevil, worms, etc.	Purity of variety.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
BRUCE.				(20)	(15)	(20)	(15)	(30)	(100)	
EASTNOR AGR. SOCIETY.										
Judge—R. W. Zavitz,										
Ilderton, R.R. 2.										
Jos. Bray, Lion's Head,	R.R. 1		Golden Vine.....	19	14	18	13	29	93	
A. Bray, do	R.R. 1		do	17	14	16	13½	26	86½	
W. J. Walpole, do	R.R. 1		do	15½	13	18	12	26½	85	
Wm. Warder, do	R.R. 1		do	17	13	16	12	26½	84½	15
Wm. J. Bray, do	R.R. 1		do	16½	10	17	13	26	82½	1, 15
Byron Bray, do	R.R. 1		do	14½	12	16	13	24	79½	
E. Davis, do	R.R. 1		do	18	3	17	14	27	79	1
F. Cameron, do	R.R. 1		Can. Beauty.....	16½	13½	13	11	24½	78½	
A. Miehhausen, do	.....		Canada.....	15½	13½	10	12	26	77	
H. H. Harding, do	R.R. 1		Golden Vine.....	17	12	9	7	26	71	
S. L. Rutherford, do	R.R. 1		.....	17½	....	17	10	25	69½	
RENFREW.										
CROBEN AGR. SOCIETY.										
Judge—J. H. Wiggins,										
Kemptville.										
S. McLaren, Cobden,	R.M.D.		Golden Vine.....	17	14	18½	14	27	90½	
A. Johnston, do	R.M.D.		do	17	14	19	14	26	90	15
Alex. McBride, do	R.M.D.		.....	17	14½	18	13	27	89½	15
Geo. McDlarmid, do	R.R. 5		Golden Vine.....	16	14	18	14	27	89	2
A. Ross, Forester's Falls,	R.R. 1		Crown.....	17½	14	18	13	25	87½	10, 15
Wm. Morrison, Cobden,	R.R. 3		Golden Vine.....	17	14	18	13	25	87	10, 15
P. Wilson, do	R.R. 3		Concordia.....	15	13	18	14	25	85	10
A. J. Connelly, do	.....		Golden Vine.....	15½	13	18	13	25	84½	10, 15
Jos. Edwards, do	.....		do	16	14	18	13	23	84	15, 12
D. McEwan, do	R.R. 6		.....	16	13	15	14	25	83	11
W. J. Oates, do	R.M.D.		Golden Vine.....	13	13	15	12	24	77	12, 10
J. C. Bulmer, do	R.R. 1		Concordia.....	10	....	14	13	23	60	10, 12
RENFREW AGR. SOCIETY.										
Judge—J. H. Wiggins,										
Kemptville.										
D. B. Stewart, Renfrew,	R.R. 5		Golden Vine.....	18½	14½	18½	14	27½	93	2
F. H. Johnston, do	R.R. 5		.....	18	14	19	14½	27	92½	15
G. A. Peever, do	R.R. 3		Arthur.....	17½	13½	19	14½	25½	90	10, 8
P. H. Bolger, do	R.R. 2		Golden Vine.....	18	12	18½	14	27	89½	2
Alex. Fraser, Newfield	.....		do	18	14	18½	14	24½	89	15, 10
Jno. Airth, Sr., Renfrew	.....		Arthur.....	16½	14	18	14½	25½	88½	10
J. B. McLaren, do	.....		do	16½	13½	18	13	27	88	2, 10, 15
N. Jamieson, do	R.R. 3		Golden Vine.....	14½	13½	18	14	26½	86½	2
Geo. Francis, do	R.R. 3		do	17½	10	18	13½	26½	85½	2
G. McIntyre, do	.....		Arthur.....	15½	12	18	14	25½	85	2, 14
W. Kasuboski, do	R.R. 5		Arthur.....	16½	14	15	13½	25½	84½	
Jas. H. Fraser, Newfield	.....		Golden Vine.....	12½	14	18½	14	20½	79½	

*General appearance—Considering stand of crop, type of plant, vigor and uniformity of growth and method of seeding.

†Yield and quality of grain—Considering number and size of pods per plant, uniformity of maturity and proportion of grain to straw.

‡See key-page.

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

BEANS.

Competitors in Order of Merit.	Name of variety	*General appearance.	Freedom from disease and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield and quality of grain.	Totals of scores.
KENT.		(20)	(10)	(20)	(15)	(35)	(100)
ORFORD AGR. SOCIETY.							
<i>Judge—S. M. Pearce, Fingal.</i>							
J. F. McLaren, Highgate, R.R. 1		16	10	18	13	27	84
Wm. Blue, Muirkirk, R.R. 1		18	8	18	14	25	83
E. McDonald, do R.R. 2		16	8	18	15	25	82
C. Gosnell, Highgate, R.R. 2		15	8	18	13	27	81
H. F. Sifton, do R.R. 1		14	10	17	15	23	79
W. M. Attridge, do R.R. 1		15½	10	16	13	24	78½
W. C. Sifton & Sons, Palmyra..		18	9	18	13	20	78
J. B. McDonald, Muirkirk, R.R. 2		15	10	14	15	23½	77½
J. Schweitzer, Highgate, R.R. 1		12	9	19	15	22	77
J. W. Reyeroft, Muirkirk, R.R. 2		16	9	16	14	21	76
E. Gosnell, Highgate, R.R. 2		12	10	17	15	22	76
F. W. Scott & Sons, do R.R. 1		14	8	17	15	21	75
D. D. Graham, Muirkirk, R.R. 2		14	8	18	13	22	75
J. C. Ashton, do R.R. 2		14	8	18	15	19	74
L. Beattie, do R.R. 2		16	9	18	14	16	73
W. Shipp & Sons, Ridgetown,							
R.R. 1		17	9	18	13	16	73
R. R. McLaren, Highgate, R.R. 1		13	10	18	12	19	72
E. W. McTavish, Muirkirk, R.R. 2		12	8	17	15	20	72
Geo. Loughed, do R.R. 1		14	8	10	15	24	71
Jno. Snobelen, Highgate, R.R. 2		13	9	16	12	21	71
P. Clark & Sons, do R.R. 2		12	9	17	12	20	70
Jno. McLeod, Muirkirk, R.R. 2		10	10	15	15	20	70
R. J. Newman, do R.R. 2		16	9	18	12	15	70
A. Roberts, do R.R. 2		12	8	16	15	19	70
Geo. Strath, do R.R. 2		12	8	15	14	19	68
D. Ferguson & Sons, Highgate,							
R.R. 2		10	10	15	15	16	66
G. B. Newman, Muirkirk, R.R. 2		18	10	15	15	5	63

*General appearance—Considering method of planting, uniformity of stand, vigor of growth and evenness of crop.

†Apparent yield and quality of grain—Considering number and size of pods per plant, number of beans per pod, uniformity of maturity, marketable quality, including size, smoothness and color.

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN,

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
BRANT.		(20)	(5)	(20)	(15)	(40)	(100)
ONONDAGA AGR. SOCIETY.							
<i>Judge—Rott. Berry, St. Mary's, R.R. 1.</i>							
A. W. Vansickle, Onondaga	Wisconsin No. 7..	17½	4	18½	14	29	83
R. J. Robertson, do	White Cap.....	16½	4	18½	14	23	76
David Thomson, Cainsville	Leaming.....	17	5	12½	5	33	72½
D. T. Thomson, do R.R. 1	Wisconsin No. 7..	17	4	13½	14	23½	72
Jas. Pate, Paris, R.R. 4	do ...	15½	5	18	14	18½	71
Geo. Thomson, Cainsville, R.R. 1	do ...	12½	5	18½	4	30	70
Thos. Thomson, do R.R. 1	do ...	16	5	15½	14	17½	68
A. W. Hamilton, do	Leaming.....	14	4	10	8	17	53
H. Hamilton, do R.R. 2	Wisconsin No. 7..	12	4½	10	12	12	50½
D. B. Campbell, do	do ...	10	5	18	12	4	49
H. H. Howell, do	Leaming.....	13½	5	8½	14	8	49
E. Hamilton, do R.R. 2	Wisconsin No. 7..	8½	5	10	13	3	39½
CARLETON.							
CARP AGR. SOCIETY.							
<i>Judge—W. Hickson, Bobcaygeon.</i>							
G. H. Caldwell, Carp	Imp. Leaming....	18½	5	17	15	34½	90
F. S. Caldwell, do	Leaming.....	18	5	16	15	34½	88½
J. H. Wilson, do	do	17½	5	15	15	35	87½
E. H. Graham & Son, do	do	17	5	15	15	35	87
J. W. Humphries, do	do	16½	4½	16	15	33½	85½
C. Humphries, do	Pride of Nashua & W. C. Yel. Dent.	16½	4	16	15	33½	85
G. Rivington & Son, do	Leaming.....	16½	5	15	15	32	83½
S. Johnston, do	do	16½	5	18	15	27	81½
R. T. Argue & Son, do	do	15	5	15	15	30½	80½
W. G. Rivington, do	do	14½	5	15½	15	23	73
H. K. Hodgins, do	Imp. Leaming....	13	5	15	15	24	72
DUNDAS.							
WINCHESTER AGR. SOCIETY.							
<i>Judge—Robt. McKay, Marville.</i>							
Thos. Edgerton, Winchester, R.R. 4	Wisconsin No. 7..	18½	5	19	14½	30½	87½
F. Helmer, Winchester	Mam. 8-rowed....	18	4½	17	14½	31	85
W. J. Jamieson, do R.R. 4	North Dakota.....	18½	4½	19½	14½	26½	83½

*General appearance—Considering uniformity and stand of crop, type of plant, and vigor of growth, and method of planting.

†Yield of fodder and grain—Considering quality and quantity of fodder, type as regards size, shape and yield of ears, size and depth of kernels, variety considered.

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety	†Yield of fodder and grain.	‡Totals of scores.
DUNDAS.— <i>Continued.</i>		(20)	(5)	(20)	(15)	(40)	(100)
WINCHESTER AGR. SOCIETY.— <i>Con.</i>							
E. Baker, Winchester	Mam. 8-rowed	17½	4½	16	14	31	83
S. R. Fulton, Chesterville	King Philip	15½	5	15	14½	32½	82½
E. R. Steele, Winchester	Wisconsin No. 7..	19	5	17	14½	26	81½
M. Johnston, do	Leaming & W. C.						
	Yel. Dent	18½	5	19	7½	29½	79½
H. Stoodley, do	Wisconsin No. 7..	17	5	14½	14½	28	79
R. D. Cheney & Son, do	Imp. Leaming	16½	5	15	14½	27½	78½
R. Baker, do	Wisconsin No. 7..	15	5	14	13	30½	77½
H. Middagh, do	Southern Sweet..	14½	5	14	14½	28½	76½
R. J. Anderson, do	Wisconsin No. 7..	16	5	14½	14½	25½	75½
Wm. Hamilton, Chesterville ..	do	15½	5	14½	13½	26½	75
D. Christie & Son, Winchester.	Imp. Leaming	17	5	15	14	23½	74½
W. B. Hamilton, Chesterville ..	White Cap	14	5	12	10½	27	68½
DURHAM.							
CLARKE TP. AGR. SOCIETY.							
<i>Judge—W. Hickson, Bobcaygeon.</i>							
W. L. Smith, Orono	Wisconsin No. 7..	17	5	20	15	36	93
C. L. Powers, do R.R. 1....	do	18	5	19½	15	35	92½
D. W. Bragg, Newcastle	W. C. Yel. Dent..	17½	5	20	15	34½	92
C. A. Chapman, Orono	Wisconsin No. 7..	17½	5	20	15	34	91½
A. A. Powers, do	do	17	5	18	15	36	91
H. Moffatt, do	do	17½	5	20	15	32	89½
W. F. Rickard, Newcastle	do	16½	5	17½	15	31	85
H. Allin, do	Mixed	16½	5	18	15	30	84½
J. T. Chapman, Orono, R.R. 1..	Leaming	17	5	18	15	29	84
D. J. Gibson, Bowmanville, R.R. 4	W. C. Yel. Dent..	15½	5	17	15	30½	83
A. J. Tambllyn, Orono	Leaming	17	5	17	15	28	82
F. W. L. Tambllyn, do	do	15½	5	18	15	27	80½
W. N. Buckley, do R.R. 1	do	15	5	18	15	25	78
S. Jose, Newcastle	Wisconsin No. 7..	14	5	16	15	26	76
ELGIN.							
ALDBOROUGH AGR. SOCIETY.							
<i>Judge—E. J. Mullins, Woodslee.</i>							
W. W. Havens, Rodney	Wisconsin No. 7..	20	4½	19	14	32	89½
Arch. McColl, do	Compton's	19	4½	19	14	28	84½
R. A. Kerr, do	Wisconsin No. 7..	18	2	18	15	30½	83½
Wm. Kelly, do	8-rowed Y. F.	17	4	18	10	34	83
A. Leitch, Jr., Wardsville	White Cap	19	5	20	11	27	82
A. Wehlann, Rodney	do	17	4	18	12	30½	81½
Jas. Downey, Wardsville	North Dakota	17	4	19	13½	28	81½
D. Purcell & Son, do	White Cap	17	4	20	13	27	81
Thos. Heywood, do	Longfellow	17	5	20	12	25	79

*NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
ELGIN.—Continued.		(20)	(5)	(20)	(15)	(40)	(100)
ALDBOROUGH AGR. SOCIETY.—<i>Con.</i>							
W. Wright, Wardsville	White Cap.	18½	4	17	13	26	78½
D. Gardiner & Son, Rodney	do.	16	4	16	13	28½	77½
J. Hessenauer, do.	Compton's.	16	4	18	12	26	76
M. McLean, do.	North Dakota.	16	4	15	12	27	74
C. Campbell, Wardsville	White Cap.	16	4	14½	11½	27	73
Jos. Blain & Son, do.	do.	14	3	15	12	28	72
J. G. Gillies, Rodney	White Flint.	11½	4	15	12	29	71½
W. Lancaster, Wardsville	White Cap.	14½	4	16½	13½	22½	71
J. F. McGregor, do.	Compton's Early.	13	4	17	12	25	71
ESSEX.							
AMHERSTBURG, ANDERDON AND MALDEN AGR. SOCIETY.							
<i>Judge—R. E. Mortimer, Honeywood.</i>							
Jas. Martin, Amherstburg, R.R. 2	Imp. Leaming.	17	4	18	14	34	87
D. E. Bondy, N. Malden, R.R. 1	Wisconsin No. 7.	17	4	17	14	34	86
G. W. Sellers, Amherstburg, R. R. 1	El. Rochester.	18	4½	18	12	33	85½
R. Langlois, Amherstburg, R.R. 1	Wisconsin No. 7.	18	4	16	12½	34½	85
F. G. Hutchins, do.	Leaming.	18	4	18	13	31	84
Thos. Deslippe, do. R.R. 1	Wisconsin No. 7.	16	4½	17	14	31½	83
E. A. Deneau, N. Malden, R.R. 1	.....	16½	4½	17	12	31	81
A. Sinasac, Jr., Auld	Wisconsin No. 7.	16½	4	16	12	32	80½
F. Pigeon, N. Malden, R.R. 1..	do.	16½	4	16	12½	31	80
T. B. Mahon, Auld	Leaming.	16	4	16	14	28½	78½
F. W. Patton, Amherstburg, R. R. 2	do.	17	4	12	13	32	78
W. Anderson, Amherstburg, R.R. 1	Bailey.	15½	4	12	14	29½	75
E. Toffelmire, do.	Leaming.	16½	3½	14	13	27½	74½
R. Piper, do.	W. C. Y. Dent.	14½	4	16	13	26½	74
E. McGee, N. Malden, R.R. 1 ..	Wisconsin No. 7.	15½	4	12	13	28½	73
G. Deneau, Amherstburg	W. C. Yel. Dent.	15	4	14	12	25	70
A. P. Meloche, do.	Bailey.	13½	4	11	14	26	68½
A. E. Wood, do. R.R. 2	Wisconsin No. 7.	13½	4	8	13	22½	61
COMBER AGR. SOCIETY.							
<i>Judge—L. D. Hankinson, Aylmer, R.R. 2.</i>							
J. S. Ainslie, Comber	Leaming.	19½	5	20	14	37	95½
W. H. White, Staples, R.R. 2 ..	Gold Medal.	18½	4½	19	14	35½	91½
A. Taylor, Comber	W. C. Y. Dent.	18½	4½	19	13½	35	90½
T. N. Taylor, do.	Bailey.	18	5	18	14	35	90
A. Gangnier, Stoney P't, R.R. 1	Leaming.	18	4	18½	14	34	88½
A. F. Allyn, Tilbury, R.R. 4....	do.	17½	4	18½	13	35	88
Benj. Brown, Comber	Bailey.	17½	4	18	14	34	87½

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.--*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	Yield of fodder and grain.	Totals of scores.
ESSEX.— <i>Continued.</i>		(20)	(5)	(20)	(15)	(40)	(100)
COMBER AGR. SOCIETY.— <i>Con.</i>							
W. D. Holmes, Tilbury, R.R. 4..	Gold Medal.....	17½	4½	16	14	35	87
R. B. Keith, Comber	Bailey.....	16½	4½	17½	13½	34½	86½
A. E. Dodson, Tilbury, R.R. 4	do	18½	5	16	13	33½	86
O. D. Gangnier, do R.R. 4	Leaming.....	16½	4	18½	12	34	85
J. H. Dietrich, Comber	Wisconsin No. 7..	17½	3	17	14	33	84½
O. Frankfurth, do	do	19	4	15	14	32	84
Thos. Brein, do	Gold Medal.....	16½	4½	17	13	32	83
P. E. Lawe, Stoney Point	White Cap.....	14	4½	17	14	33	82½
W. D. Elliott, Comber	Bailey.....	15½	4	18	13	31	81½
Geo. Lee, do	Leaming.....	16	4	16	13	32	81
Chas. Hill, Tilbury, R.R.	do	16	4	15	12	34	81
W. J. Roadhouse, Comber	Wisconsin No. 7..	15½	4	16	13	31	79½
C. Dupuis, do	Leaming.....	14	4	16	12	32½	78½
W. C. Washburn, Strangfield ..	do	15½	4	15	13	31	78½
J. N. Nussey, Tilbury, R.R. 4..	White Cap.....	13½	4	18	12	30½	78
E. J. Hillman, Comber	do	15	4	14	13	32	78
E. Hiser, do	W. C. Y. Dent.....	13½	4	15	13	29	74½
SOUTH WOODSLEE AGR. SOCIETY.							
<i>Judge—L. D. Hankinson, Aylmer, R.R. 2.</i>							
Jno. Wallace, South Woodslee	Wisconsin No. 7..	18½	4½	18½	15	36	92½
J. H. Hedrick, do	do	18½	4	19	14½	36	92½
B. R. Cohoe, do	do	17½	4½	17½	15	36½	91
Thos. Plant, do	do	17½	4½	18	14	33	87
F. Dornton, do	Bailey.....	16	4	18	14	33½	85½
T. Sheehan, do	Leaming.....	17	4½	17	13	33	84½
F. B. Fuerth, do	Wisconsin No. 7..	16½	4	16	14	33½	84
A. Leboeuf, St. Joachim	do	17	4½	16	12	33	82½
Wm. Mitchell, South Woodslee	Early Cuban.....	15	4	16	14	32	81
W. H. Knister, Ruscomb	Wisconsin No. 7..	16	4	16	12½	32	80½
C. Fenner, do	do	14	4	15	13	31	77
WINDSOR AND NORTH ESSEX AGR. SOCIETY.							
<i>Judge—R. E. Mortimer, Honeywood.</i>							
J. Marentette, Windsor, R.R. 1	Wisconsin No. 7..	17½	4	18	14	34½	88
P. McKinley, Tecumseh	do	17	4	17½	14	32½	85
H. G. Arnald, Maidstone	W. C. Y. Dent.....	17	4½	17	14	32	84½
E. Durocher, Windsor, R.R. 1..	Wisconsin No. 7..	17	3½	17	13	33½	84
F. I. Ure, Maidstone	do	17	3½	16	14	33	83½
A. Ouellette, Windsor, R.R. 1 ..	W. C. Y. Dent.....	15	3½	18	14	32½	83
H. O'Neil, Paquette	do	17	3½	17½	12½	32	82½
P. J. Clapp, Tecumseh	Wisconsin No. 7..	16½	3	15	14	33	81½
J. Hebert, do	Goldseed.....	15½	4	16	12	29½	77
D. Campeau, do	do	15	3	16	12	30	76

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*
CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
		(20)	(5)	(20)	(15)	(40)	(100)
ESSEX.—Continued.							
WINDSOR AND NORTH ESSEX AGR. SOCIETY.—Continued.							
N. Doumouchelle, Windsor, R.R. 1	W. C. Y. Dent.....	15½	4	15	10	30½	75
T. Jobin, Maidstone, R.R. 3	do	15	3½	17½	12	26½	74½
L. Parent, Tecumseh, R.R. 2	.....	16	3½	15	9	30	73½
Jos. St. Louis, do	Ohio Dent.....	15½	4	16	10	26	71½
J. Morand, Jackson's Corners	Mixed.....	16½	3	14	8	29	70½
Wm. C. Price, Elmstead	W. C. Y. Dent.....	12½	4	10	12	25½	64
D. St. Louis, Tecumseh, R.R. 1	.....	14½	4	10	11	24	63½
Jno. O'Neil, Maidstone, R.R. 3	.....	13½	4	11	12	22	62½
R. M. Major, Belle River, R.R. 1	Cuban Yel. & E. Mastodon....	12½	3	13	7½	20	56
GRENVILLE.							
KEMPTVILLE AGR. SOCIETY.							
<i>Judge—J. D. McLennan, Lancaster, R.R. 1.</i>							
H. Sloan, Kemptville, R.R. 5	Wisconsin No. 7...	17	4	19	14	36	90
A. H. Buchanan, do	W. C. Y. Dent.....	17	4	18	13	35	87
C. D. Beckett, do R.R. 4	Golden Glow.....	17	4	17	13	33	84
G. E. Wigglin, do R.R. 4	W. C. Y. Dent.....	16	4	15	14	34	83
W. A. Davidson, do R.R. 4	Golden Glow.....	16	4	17	12	33	82
W. H. Latourell, Mountain, R.R. 3	Leaming.....	16	4	18	14	29½	81½
M. A. Powell, Kemptville, R.R. 4	W. C. Y. Dent.....	15	4	17	14	31	81
A. Kernahan, do	Wisconsin No. 7...	14	4	17	14	31	80
H. C. Beckett, Oxford Mills	W. C. Y. Dent.....	16	3	16	13	31	79
H. M. Lee, Kemptville, R.R. 3	do	12	4	19	14	29	78
M. Latimer, do R.R. 4	do	12	4	17	13	30	76
W. J. Rutherford, do	do	16	4	14	14	25	73
L. Beckett, Oxford Mills	Wisconsin No. 7...	14	4	16	12	26	72
J. W. Patterson, Kemptville, R. 4	W. C. Y. Dent.....	16	4	17	13	21	71
C. A. Powell, Kemptville, R.R. 4	Wisconsin No. 7...	14	4	15	10	26	69
Wm. E. James, do	Golden Glow.....	14	3	17	7	22	63
W. B. Percival, Burritt's Rapids	W. C. Y. Dent.....	14	2	10	10	25	61
M. Wilson, Kemptville, R.R. 4	do	12	4	10	10	24	60
GREY.							
HOLLAND AGR. SOCIETY.							
<i>Judge—James McNeil, Maple.</i>							
E. P. Hammill, Chatsworth, R. 4	White Cap.....	16½	5	19	15	25	80½
W. Hamilton, Owen Sound, R.R. 4	Mixed.....	17½	5	17	12	27	78½
Jas. McDonald, Chatsworth .....	.....	17½	5	18	13	24	77½
R. T. McComb, do R.R. 1	Leaming.....	16	5	16	15	24	76
J. C. Ceaser, Holland Centre .....	.....	16½	5	15	15	23	74½
R. S. Lee, Chatsworth, R.R. 1	Longfellow.....	15	5	15	15	24	74
J. N. Perdue, do	Compton's Early..	15	5	14	15	22	71

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
GREY.— <i>Continued.</i>		(20)	(5)	(20)	(15)	(40)	(100)
HOLLAND AGR. SOCIETY.— <i>Con.</i>							
L. Mannerou, Desboro .....	.....	15	5	18	9	22	69
Chas. Finn, Chatsworth	Compton's Early..	14½	5	14	13	22	68½
A. Shute, Holland Centre, R.R. 1	White Cap.....	15	5	13	13	22	68
C. Engel, Chatsworth, R.R. 3..	Wisconsin No. 7..	15½	5	11	15	21	67½
C. Magee, Desboro	Longfellow.....	14	5	18	10	20	67
H. J. Jackson, Holland Centre	Wisconsin No. 7...	13½	5	10	15	21	64½
K. Minnis, do	Longfellow.....	13	5	10	15	18½	61½
Jas. Seabrookes, Chatsworth, R. R. 2 .....	.....						
F. Walker, Chatsworth, R.R. 3	Compton's Early..	12	5	10	12	20	59
	Longfellow						
	(mixed).....	14	5	12	7	20½	58½
G. Hamilton, Owen Sound, R.R.4	.....	13½	5	10	11	19	58½
Geo. Rowe, Chatsworth, R.R. 3	W. C. & Leaming..	12	5	15	7	19	58
W. J. Carson, do R.R. 3	White Cap.....	11	5	10	10	17	53
D. Hamilton, Owen Sound, R.R.6	do	10	5	10	10	15	50
R. J. Jordison, do R.R. 4	.....	9½	5	10	12	11	47½
R. McDonald, Chatsworth, R.R. 3	.....	9½	5	5	12	15	46½
MARKDALE AGR. SOCIETY.							
<i>Judge—Jas. McNeil, Maple.</i>							
Jos. Buchanan, Flesherton, R.R.2	Golden Glow.....	17	5	18	15	23½	78½
Jno. Yeadell, Rocklyn, R.R. 2..	Wisconsin No 7...	16	5	17½	15	22	75½
J. A. Halbert, Markdale, R.R. 3	Leaming.....	16	5	15	15	24	75
Earl Davis, do R.R. 4	W. C. Y. Dent.....	15½	5	15	15	24	74½
Otto Foy, do R.R. 2	Wisconsin No. 7..	15	5	16	15	21	72
H. Shaw, do	W. C. Dent.....	14½	5	16	15	21	71½
J. I. Graham, do R.R. 4	W. C. Y. Dent.....	15½	5	12	15	22	69½
Wm. Perry, Rocklyn	Wisconsin No. 7..	15½	5	10	15	22	67½
H. D. McLoughry, Markdale ..	W. C. Y. Dent.....	12	5	15	15	18	65
T. L. Mercer, do ..	.....	13½	4	11	11	20	59½
A. Caesar, Flesherton, R.R. 2..	W. C. Y. Dent.....	10½	5	9	12	16	52½
Wm. G. Shannon, Markdale, R.R.4	do ...	11	5	7	12	15	50
MEAFORD AND ST. VINCENT AGR. SOCIETY.							
<i>Judge—Walter Baldock, Matton, R.R. 2.</i>							
L. Sewell, Meaford, R.R. 2	Wisconsin No. 7...	18	4	18	13	34	87
W. A. Johnson, do	White Cap.....	17	4	18	13	34	86
A. G. Mason, do	W. C. Dent.....	16	4	18	13	34	85
C. R. Shields, do R.R. 1	W. C. Y. Dent.....	17	4½	17	14	32	84½
F. J. Eaton, do R.R. 1	White Cap.....	16½	4	16	14	33	83½
Arnold Rows, do R.R. 1	Wisconsin No. 7...	16	4	17	13	32	82
E. E. Martin, do .....	.....	15	4	16	13	32	80
Jos. Lowe, do	Wisconsin.....	15	4	15	12	32	78
M. Gardiner, do	Big Crop.....	14	4	16	12	31	77
Jas. H. Allen, do	White Cap.....	14	4	15	12	31	76

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
GREY.— <i>Continued.</i>		(20)	(5)	(20)	(15)	(40)	(100)
WALTER'S FALLS AGR. SOCIETY.							
<i>Judge—Walter Baldock, Malton, R.R. 2.</i>							
Thos. G. Quinton, Walter's Falls	Wisconsin No. 7..	17	4	19	13	34	87
Jos. Hartman, Meaford, R.R. 2	do ...	17	4	19	13	33	86
W. I. Seabrook, Markdale, R.R. ...	do ...	17	4	18	13	33	85
Wm. T. King, do R.R. 3	do ...	16	4	19	12	33	84
E. Quinton, Walter's Falls	do ...	16½	4	17	13	33	83½
Geo. T. Reld, Goring	do ...	16	4	16	13	32	81
Jos. Shepherdson, Markdale, R. R. 3	do ...	15	4	18	12	31	80
F. E. Wickham, Walter's Falls..	do ...	15	4	17	12	31	79
M. Mustard, Chatsworth, R.R. 5	do ...	16	4	16	12	30	78
Edw. McKibbin, Bognor, R.R. 2	White Cap.....	16	4	15	12	30	77
Jno. Norton, Holland C'tre, R.R. 1	Wisconsin No. 7..	15	4	15	12	29	75
Ernest McKibbin, Strathaven ..	White Cap.....	15	4	15	12	27	73
HALDIMAND.							
CALEDONIA AGR. SOCIETY.							
<i>Judge—Robt. Berry, St. Mary's, R.R. 1.</i>							
R. F. Young, Caledonia, R.R. 4	Leaming.....	18	5	18	15	28½	84½
A. C. Phipps, do	Imp. Leaming....	17½	5	15	15	31	83½
H. Nelles, do R.R. 4	Leaming.....	16	5	15	15	30½	81½
Jas. Douglas, do R.R. 2	Ensilage.....	14	4½	9	15	26	68½
W. J. Gringer, do	Wisconsin No. 7..	12	5	18½	15	16	66½
Jas. Yule, do R.R. 2	Leaming.....	15½	4½	10	14	13	57
W. J. Moffatt, Glanford Station. R.R. 3	do	10½	4½	10	15	16	56
R. F. Duncan, Caledonia, R.R. 2	Wisconsin No. 7..	13½	5	10	13½	10½	52½
W. A. McNiven, Hamilton, R.R. 4	Leaming.....	11½	4½	12	15	8	51
Alex. Forbes, Caledonia	do	10½	5	8½	14	5	43
HASTINGS.							
STIRLING AGR. SOCIETY.							
<i>Judge—G. W. Davidson, Kemptville, R.R. 4.</i>							
M. Shea, Stirling	Bountiful.....	18	4	18	14	36	90
C. W. Thompson, do	Wisconsin No. 7..	16	4	19	14	36	89
H. Heath, Harold	do ...	18	4	19	14	33	88
T. J. Thompson, Springbrook ..	do ...	17	4	18	14	34	87
C. N. Heath, Harold	do ...	15	4	18	14	33	84
Alex. Fargey, W. Huntingdon ..	W. C. Y. Dent.....	15	4	15	14	31½	79½
C. M. Sine, Harold, R.R. ...	Wisconsin No. 7..	15	4	18	12	29	78
Jas. A. Bailey, do	do ...	13	4	16	13	31½	77½
Thos. Montgomery, Stirling ...	do ...	13	4	18	12	30	77
Rev Heath, Harold	do ...	13	4	15	14	26	72

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
HURON.							
GODERICH IND. SOCIETY.							
<i>Judge—Geo. E. Foster, Honeywood.</i>							
Jno. Sowerby & Sons, Goderich, R.R. 2	Leaming	(20) 19½	(5) 4½	(20) 20	(15) 14	(40) 32	(100) 90
J. S. Kerrughan, Goderich, R.R. 4	do	18	4	20	12	31	95
G. W. Andrews, do R.R. 2	do	18½	4	20	12	29	83½
Bell Bros., do R.R. 2	do	17	4½	19	12	25	77½
A. Fisher, do R.R. 4	do	15½	4	19	14	24	76½
L. B. Stothers, Lucknow, R.R. 7	Wisconsin No. 7..	14½	4	15	13	24	70½
J. W. Salkeld, Goderich, R.R. 2	Leaming	18	5	19	15	12	69
A. & E. Fisher, do R.R. 4	do	15½	4	8	14	25½	67
I. Salkeld, do R.R. 2	do	14	5	17	15	9	60
KENT.							
HARWICH AGR. SOCIETY.							
<i>Judge—A. V. Mitchener, O.A.C., Guelph.</i>							
J. D. McPherson, Blenheim, R.R. 1	White Cap	20	4½	17	15	38	94½
Jas. McPherson, Cedar Springs	do	19½	4½	19	14½	35	92½
R. J. Johnson, Chatham, R.R. 3	Salzer's N. D.	19	3	20	14½	35½	92
A. S. Maynard, do R.R. 3	do	18	2	19	14½	34	87½
T. E. Pegg, Blenheim, R.R. 2	W. C. Y. Dent	18	4¾	13	15	36½	87½
Robt. McGuigan, Cedar Springs	White Cap	18½	4½	15	13	35½	86½
Jas. R. Allison, Blenheim, R.R. 3	Longfellow	16	4½	18	14½	30½	83½
E. Mallory, do R.R. 2	White Cap	16	4¾	17	14	32	83½
H. Mosey, do R.R. 5	Yel. Dent	17½	3	19	13	28	80½
J. A. Watts, do R.R. 5	Leaming	15½	4	13	14½	33	80
J. B. Clark, do R.R. 3	Salzer's N. D.	17	4½	18	11	28	78½
A. E. Tole, do R.R. 4	do	17½	4½	17	12	23	74
A. W. Wiley, do R.R. 2	W. C. Y. Dent	16½	3½	15	13	22	70
G. Clark, do R.R. 3	Salzer's N. D.	14	4	13	14	23	68
P. Sturk, do R.R. 2	White Cap	16	4½	7	12	25½	65
RALEIGH AND TILBURY AGR. SOCIETY.							
<i>Judge—A. V. Mitchener, O.A.C., Guelph.</i>							
C. Marriott, Merlin, R.R. 2	Leaming	19½	4½	18	15	37	94½
D. Fletcher, Fletcher	Wisconsin No. 7..	19½	4½	18	14½	34	90½
Robt. Fletcher, Merlin, R.R. 1	Leaming	18½	4	19	14½	34	90
John Jenner, do	White Cap	18	4½	18	14	34½	89
H. Johnson, do R.R. 4	do	18	4½	19	14½	32½	88½
D. Fletcher, do R.R. 1	do	18½	4	17	14	31	84½
Wm. Blake, do R.R. 4	do	17	4	17	14	32	84
A. Makey, do	do	17	4	15½	14½	32	83
Jno. Hickey, do	do	18	4	14½	12	31½	80
M. Gleeson, Fletcher, R.R. 2	do	16½	4½	14	13	28	76
Jas. Fletcher, Merlin, R.R. 1	Leaming	17	4	12	10	32	75
Alex. Farquharson, do R.R. 1	White Cap	16	4	16	8	30	74

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN,

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
KENT.—Continued.		(20)	(5)	(20)	(15)	(40)	(100)
WALLACEBURG AGR. SOCIETY.							
<i>Judge—S. M. Pearce, Fingal.</i>							
D. L. McCreary, Wallaceburg ..	Golden Glow	18	4	18	15	31½	86½
D. Coveny, Electric	Wisconsin No. 7...	17½	4½	17	15	31	85
Jno. Coveny, do	do	17½	4½	18	15	29	84
O. Crowe, Wallaceburg, R.R. 5	do	17	4	16	14	32	83
J. E. Richardson, do R.R. 2	W. C. Y. Dent.....	17	4½	18	10	33	82½
Thos. Fox, Electric	Yel. Dent.....	17	4	17	15	29	82
Geo. Crawford, do	do	17½	4½	15	15	29	81
C. Crowe, Wallaceburg, R.R. 5	Wisconsin No. 7...	16½	4	15	15	28	78½
W. C. Gordon, Electric	Golden Glow	17½	4½	12	14	29	77
J. M. Langstaff, Tuppersville, R. 3	Early Butler.....	16	4	12	12	31	75
S. J. Harper, Wallaceburg, R.R. 1	Wisconsin No. 7...	15	4½	13	14	20	66½
A. E. Frye, do R.R. 1	W. C. Y. Dent.....	14	4	10	10	21	59
LAMBTON.							
BOSANQUET AGR. SOCIETY.							
<i>Judge—C. C. Rokeby, Port Rowan.</i>							
Robt. Tidball, Thedford, R.R. 3	Bailey.....	18	4	19	13½	31½	86
Jas. Walden, do R.R. 3	W. C. Y. Dent.....	17	4	18½	13½	32½	85½
A. Sercombe, Parkhill	Cloud's Early.....	17	4	15½	14	33	83½
F. A. Jennings, Thedford	Leaming.....	17½	4½	18	12½	30	82½
O. Walden, do	W. C. Y. Dent.....	17	4	17	13½	30½	82
C. Borthwick, do	Bailey.....	16½	4	16½	13	31½	81½
A. S. Carmichael, do R.R. 3	W. C. Y. Dent.....	17½	4	16½	12½	30½	81
Robt. Oliver, do	Pride of the North	17	4½	17	13	29	80½
Wm. Tidball, Forest, R.R. 1 ..	Cloud's Early.....	15	4	17	13	30½	79½
Geo. Valentine, do R.R. 1 ..	.....	17½	4	16½	13	28	79
G. H. Wilson, Thedford, R.R. 2	W. C. Y. Dent.....	16	4½	16½	13	27½	77½
J. Sercombe, do R.R. 2	do	16	4	16	12½	28½	77
Geo. Jamieson, do R.R. 3	do	14½	3½	15½	13	29½	76
Jos. Molay, do R.R. 1	do	15½	4½	17	13	26	76
R. Elliott, do	Wisconsin No. 7...	15½	4	16	12	28½	76
Jas. French, do R.R. 3	W. C. Y. Dent.....	15½	4	16	12	27	74½
H. Traver, do R.R. 3	do	15½	4½	16	12	26	74
R. Anderson, do R.R. 3	do	15	4	16½	11	27½	74
P. Bass, do R.R. 3	do	15½	4½	16	10	27½	73½
A. Fitchette, do R.R. 3	Huron.....	15½	4	15	12	24	70½
BROOKE AND ALVINSTON AGR. SOCIETY.							
<i>Judge—S. M. Pearce, Fingal.</i>							
F. W. Oke, Alvinston, R.R. 2	Golden Glow	18	4	19½	14	31	80½
Jas. Hand, do R.R. 4	do	18	4½	19	14	28	83½

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*
CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	Yield of fodder and grain.	Total of scores.
LAMBTON.— <i>Continued.</i>		(20)	(5)	(20)	(15)	(40)	(100)
BROOKE AND ALVINSTON AGR. SOCIETY.— <i>Continued.</i>							
L. W. Oke, Alvinston, R.R. 2	Golden Glow.....	17	4½	19	14½	27	82
Geo. Lightfoot, do R.R. 7	do.....	16½	4½	19	14	27	81
Jas. McCallum, do R.R. 4	W. C. Y. Dent.....	18	4½	20	12	26	80½
Thos. Braithwaite, do.....	Golden Glow.....	18	4	17	14	27	80
W. J. Weed, do R.R. 7	do.....	17½	4	18	14	25	78½
H. A. Gilroy, do R.R. 6	do.....	17	4	13	13	27	74
L. Lehrfuss, do R.R. 4	do.....	17	4	16	12	24	73
Geo. H. Oke, do.....	W. C. Y. Dent....	14	4	19	12	17	66
SOMBRA AGR. SOCIETY.							
Judge—S. M. Pearce, Fingal.							
S. McDonald, Pt. Lambton, R.R. 2	Bailey.....	17½	4½	17	15	30	84
H. Sheller, do.....	Wisconsin No. 7..	17	4½	19	13	30	83½
S. S. Deyo, Wallaceburg, R.R. 5	do.....	16½	4½	16	12	29	78
R. Stenton, Pt. Lambton.....	Leaming.....	16	4	10	15	31	76
A. H. Selman, Wilkesport.....	Yel. Dent.....	16	4½	14	14	25	73½
J. T. Dawson, Pt. Lambton.....	Golden Glow.....	15½	4	15	15	23	72½
F. H. Burgua, Sombra, R.R. 3..	do.....	14½	4	13	15	24	70½
Bert Payne, Pt. Lambton.....	Wisconsin No. 7..	13	4½	14	12	19	62½
J. C. McMillan, do.....	Bailey.....	13½	5	10	15	18	61½
LEEDS.							
BROCKVILLE AGR. SOCIETY.							
Judge—Robt. McKay, Maxville.							
V. Brown, Lyn.....	White Cap.....	18	5	17½	14½	33½	88½
D. Dack, do.....	Longfellow.....	17	5	19	14½	30	85½
T. H. Purslow & Son, do.....	W. C. Y. Dent.....	18	5	16	14½	31½	85
J. S. Moore, Bellamys, R.R. 1..	Wisconsin No. 7..	17	4½	18	14	30½	84
C. H. McNish, Lyn.....	White Cap.....	16	5	16	14	30½	81½
J. W. Stewart, do.....	do.....	18	4½	19	14½	23	79
H. J. Willows, do.....	W. C. Longfellow.	18	5	18	7	29½	77½
A. J. Bushfield, do.....	S. Dakota.....	16½	4½	13½	14	28½	77
Jos. Hudson & Son, do.....	W. C. & Leaming..	17	4½	17	7½	30½	76½
G. E. Jackson, do.....	White Cap.....	16	4½	19½	14	22	76
R. J. Parker, Brockville.....	do.....	15	4½	15½	7½	31	73½
E. H. Easton, Lyn.....	do.....	17	5	12	7½	30	71½
F. Bolin, do.....	Pride of Nashua..	13½	4½	15	14½	20½	68
J. Findon, Tin Cap.....	.....	11	4½	15	7½	20	58
MIDDLESEX.							
DORCHESTER AGR. SOCIETY.							
Judge—W. M. Abraham, Chatham, R.R. 1.							
A. Irwin, Dorchester, R.R. 1..	Wisconsin No. 7...	18½	4½	16½	12	31½	83
Ernest Smith, do R.R. 2	.....	16½	4½	19	12	28½	80½
S. Demaray, Mossley, R.R. 2..	.....	16	4½	19½	10	28	78

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
MIDDLESEX.— <i>Continued.</i>		(20)	(5)	(20)	(15)	(40)	(100)
DORCHESTER AGR. SOCIETY.— <i>Con.</i>							
Chas. Hunt, Dorchester, R.R. 1.	.....	16½	4½	12½	10	31½	75
Thos. Cornish, Mossley, R.R. 2	Leaming.....	16	4½	17	10	27	74½
F. Atkins, do R.R. 2	Bailey.....	15½	4½	17	10	27	74
B. Johnson, Dorchester Station.	Smut Nose.....	14½	4	19	10	26	73½
Jno. Pettit, Dorchester	White Cap.....	14½	4	19½	10	24½	72½
F. George, Putnam, R.R. 2.....	Leaming.....	14½	4	18	10	25	71½
G. F. Neely, Dorchester Station.	.....	13	4½	14	10	23	64½
Wm. Cave, Dorchester, R.R. 3.	.....	14	4½	15	10	17½	61
R. G. Boxall, Mossley, R.R. 2	Bailey.....	12	4	15	10	17	58
Jos. Johnson, do R.R. 2	White Cap.....	13	4½	16	10	10	53½
W. Meatherell, do R.R. 2	Bailey.....	12	4	10	10	12	48
H. Matthews, Putnam	do	12	4	12	10	9	47
MOSA AND EKFRID AGR. SOCIETY.							
<i>Judge—W. M. Abraham,</i> <i>Chatham, R.R. 1.</i>							
C. Allen, Glencoe	.....	17½	3½	20	12	34	87
Jas. McRae, do R.R. 3	White Cap.....	17½	3½	18	12	34½	85½
Wm. Nethercott Sons, Wardsville, R.R. 2	Gold Mine.....	17	3½	18	12	33½	84
Jno. Gould, Glencoe, R.R. 1	Yel. Dent.....	16	4	19½	10	32	81½
C. S. Harris, do R.R. 1	do	14	4	17	10	24	69
D. McDonald, do R.R. 3	White Cap.....	13½	4	15½	10	23½	66½
D. G. McEachren, do	do	13	4	18	7½	22½	65
W. H. Reyecraft, do	.....	12	4½	17	10	11½	55
J. E. Corbett, do	.....	10	4½	10	10	9	43½
D. W. Munro, do	.....	9	4½	5	10	6	34½
A. George, do	.....	7	4½	5	10	6	32½
NORFOLK.							
MIDDLETON AGR. SOCIETY.							
<i>Judge—R. H. Abraham,</i> <i>Chatham, R.R. 1.</i>							
J. Munn, Courtland, R.R. 2	.....	17	4	18	14	37	90
C. W. Birdsall, do R.R. 1..	.....	17	4	18	14	36½	89½
Chas. Graydon, do	.....	16½	4	19	14	33	86½
V. McDonald, Tillsonburg	.....	16½	3	17½	13	35	85
H. M. Fisher, Courtland, R.R. 2	.....	15	3½	18½	13½	34	84½
L. Herron, do R.R. 2	.....	16½	4	19½	12	32	84
J. F. Robinson, do	.....	15½	4	16	13	33	81½
John McKay, do R.R. 1	.....	15	4	16	13	32	80
T. J. Simmons, do	.....	16	4	12	13	34	79

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
NORFOLK.— <i>Continued.</i>		(20)	(5)	(20)	(15)	(40)	(100)
NORTH WALSHINGHAM AGR. SOCIETY.							
<i>Judge—R. H. Abraham, B.S.A., Chatham, R.R. 1.</i>							
Wm. S. Collins, Langton	Dent.....	17	4	19½	14½	38½	93½
R. Hunter, do	White Cap.....	17	4	17	14½	37½	90½
C. H. Moore, do	Smut Nose Yel....	16	4	18½	14	37½	90
Jas. Brayley, do	White Cap.....	15½	4	19	14	36	88½
Wm. Hill, do	do	16	4	18	14	36	88
B. Alexander, do	do	16	4	16	13	35	84
E. H. Hutchinson, do	Smut Nose Yel....	14½	4	18½	14½	31½	83
C. J. Swain, do	do	15	4	16	14	33	82
Wm. Wittel, do	do	17	4	13	14	33	81
Wm. Hunter, do	White Cap.....	15	4	14	13	34	80
Jas. Hunter, do	do	14½	3½	14	13	32	77
F. Swain, do	do	15	4	14	12	28	73
Jno. Deeg, do	do	13	4	12	10	32	71
E. J. Kelly, Courtland, R.R. 1.	Smut Nose Yel....	13	3	18	10	25	69
NORTHUMBERLAND.							
SEYMOUR AGR. SOCIETY.							
<i>Judge—G. W. Davidson, Kemptville.</i>							
R. McKelvie, Campbellford	Wisconsin No. 7..	17	4	16	12	37	86
Chas. Bonnycastle, do R.R. 1	W. C. Y. Dent.....	18	4	18	13	32½	85½
H. Forestell, do R.R. 1	Red Cob.....	15	4	17	12	31½	79½
Wm. Rannie, do R.R. 3	do	15	4½	14	13	30	76½
H. Clark, do R.R. 4	Golden Glow.....	13	4	15	12	22	66
Thos. Dunham, do	Wisconsin No. 7..	15	4	12	12	22	65
Geo. Nelson, do R.R. 4	do	13½	4	16	12	13	58½
A. Stephens, do R.R. 3	Leaming.....	15	4	15	14	10	58
Chas. Bedford, do	N. Dakota.....	15	4	15	12	11	57
Jos. Hopps, do R.R. 5	Wisconsin No. 7 & Bountiful.....	13½	3	10	10	20	56½
W. J. Ross, Myersburg	Leaming.....	12½	4	12	12	16	56½
E. C. West, Campbellford	N. Dakota.....	11½	4	16	12	8	51½
ONTARIO.							
BEAVERTON AGR. SOCIETY.							
<i>Judge—D. J. Gibson, Bowmanville, R.R. 4.</i>							
G. C. H. Tisdale, Beaverton ..	Wisconsin No. 7..	18	3½	17	14	37½	90
Jno. Westlake, do R.R. 3	do	18	5	17	14	34½	88½
W. R. McKay, do	Golden Glow.....	17	4	17	14	33½	85½
The Dunrobin Farm, do	Wisconsin No. 7..	17	4	13	14	36	84

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
ONTARIO.— <i>Continued.</i>		(20)	(5)	(20)	(15)	(40)	(100)
BEAVERTON AGR. SOCIETY.— <i>Con.</i>							
J. Harrison, Beaverton, R.R. 2	Wisconsin No. 7..	14	5	17	14	31½	81½
Robt. Ross, do R.R. 1	W. C. Y. Dent.....	16	5	13	14	33	81
D. McKay, Brechin, R.R. 1....	Wisconsin No. 7....	14	5	14	14	33	80
D. Gilchrist, do	W. C. Y. Dent.....	14	5	16	13	27½	75½
P. Veale, Beaverton, R.R. 3	Bailey.....	12	5	15	14	26	72
B. C. Jude, Woodville	W. C. Y. Dent.....	13	5	10	14	24	66
OXFORD.							
EAST MISSOURI AGR. SOCIETY.							
<i>Judge—R. J. Wilson, Charing Cross.</i>							
Geo. Mathieson, Harrington W	Golden Glow.....	17	4½	19½	13½	29½	84
U. I. Hogg, Thamesford .....	.....	17½	4½	19	13½	29½	83½
H. Rutledge, Kintore	Imp. Bailey.....	17	4½	18½	13½	28½	82½
D. Thompson, Thamesford ....	.....	16½	4½	18	13½	28½	80½
J. C. Henderson, Lakeside .....	.....	16	4½	19	13½	25½	78½
T. R. McGee, do R.R. 2	.....	16½	4½	17½	13½	26½	78½
H. Harris, do	Golden Glow.....	16½	4½	17	13½	26½	78
J. A. Calder, do .....	.....	16	4½	16	13½	27½	77½
Robt. Gregory, do	Wisconsin No. 7..	16½	4½	18	13½	23½	76
Thos. McKenzie, do .....	.....	15½	4½	18	13½	23½	75½
Jno. Henderson, Thamesford ..	.....	14½	4½	17½	13½	25	75
Mercer Bros., do	Compton's Early..	15	3½	17	13½	26	74½
J. F. Day, do R.R. 1	Bailey.....	15	4½	18½	13½	23	74½
W. Gleason, Lakeside .....	.....	15½	4½	16	13½	24½	74
D. Quinn, Thamesford .....	.....	14½	4½	16	13½	25½	73½
F. G. Seaton, Lakeside, R.R. 2	Wisconsin No. 7..	15½	4½	17½	13½	20	70½
A. Whetstone, Lakeside	Golden Glow.....	13½	4½	19	13½	15	65½
SOUTH NORWICH AGR. SOCIETY.							
<i>Judge—R. E. Mortimer, Honeywood.</i>							
A. A. Graham, Otterville, R.R. 2	W. C. Y. Dent.....	17½	4	18	13	31	83½
Jas. Johnston, do	Wisconsin No. 7..	17	4	16	12	32½	81½
G. Parson, do	do	15	4½	15	13	23½	71
Wm. Treffry, do R.R. 2	do	18	4½	14	12	22	70½
A. Pearce, Tillsonburg, R.R. 3	do	16	4½	16	12	20	68½
J. R. Payne, do R.R. 3	do	16½	4½	14	12	20½	67½
H. C. Treffry, Otterville, R.R. 2	do	14½	4½	15	12	21	67
Jas. Jackson, Norwich, R.R. 1	Leaming.....	14½	4½	13	12	21½	65½
B. D. Smith, Otterville, R.R. 1	Huron.....	13½	4½	14	12	18	62
C. Clifford, do R.R. 1	do	13½	4½	12	12	19	61

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*
CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
OXFORD.— <i>Continued.</i>		(20)	(5)	(20)	(15)	(40)	(100)
WEST ZORRA AND EMBRO AGR. SOCIETY.							
<i>Judge—R. J. Wilson, Charing Cross.</i>							
Geo. Smith, Embro, R.R. 3	Pride of the North	16 $\frac{3}{4}$	4 $\frac{1}{2}$	18	13 $\frac{1}{2}$	33	85 $\frac{1}{2}$
Jno. McKay, do, R.R. 5	White Cap.....	17 $\frac{1}{2}$	4 $\frac{1}{2}$	18 $\frac{1}{2}$	13 $\frac{1}{2}$	28 $\frac{1}{2}$	82
R. & J. Matheson, do, R.R. 3	.....	16 $\frac{1}{2}$	4 $\frac{1}{2}$	17	13 $\frac{1}{2}$	30 $\frac{1}{2}$	81 $\frac{1}{2}$
L. J. Pelton, do, R.R. 1	White Cap.....	16 $\frac{3}{4}$	4 $\frac{1}{2}$	15	13 $\frac{1}{2}$	31	80 $\frac{3}{4}$
Alex. Smith, do, R.R. 5	.....	15 $\frac{3}{4}$	4 $\frac{1}{2}$	17	13 $\frac{1}{2}$	28 $\frac{1}{2}$	79
Hy. Knox, do, R.R. 4	.....	16 $\frac{3}{4}$	4 $\frac{1}{2}$	18	13 $\frac{1}{2}$	25 $\frac{1}{2}$	78 $\frac{1}{2}$
E. A. Ward, do, ...	Ensilage.....	16 $\frac{3}{4}$	4 $\frac{1}{2}$	14 $\frac{3}{4}$	13 $\frac{1}{2}$	28 $\frac{3}{4}$	78
Jas. McCorquodale, do, .....	.....	17 $\frac{1}{2}$	4 $\frac{1}{2}$	17 $\frac{1}{2}$	13 $\frac{1}{2}$	24 $\frac{1}{2}$	77 $\frac{1}{2}$
H. A. Millard, do, R.R. 1	.....	17 $\frac{1}{2}$	4 $\frac{1}{2}$	17	13 $\frac{1}{2}$	24	76 $\frac{1}{2}$
R. W. Huggard, do, R.R. 4	.....	15 $\frac{1}{2}$	4 $\frac{1}{2}$	18 $\frac{1}{2}$	13 $\frac{1}{2}$	24	75 $\frac{1}{2}$
H. McCorquodale, do, R.R. 4	.....	15 $\frac{1}{2}$	4 $\frac{1}{2}$	16 $\frac{1}{2}$	13 $\frac{1}{2}$	24 $\frac{3}{4}$	74 $\frac{1}{2}$
Wm. Forbes, do, R.R. 5	.....	16 $\frac{1}{2}$	4 $\frac{1}{2}$	14 $\frac{1}{2}$	13 $\frac{1}{2}$	35 $\frac{1}{4}$	74
R. H. Marshall, do, R.R. 2	.....	14 $\frac{1}{2}$	4 $\frac{1}{2}$	17 $\frac{3}{4}$	13 $\frac{1}{2}$	19	69 $\frac{1}{2}$
Jno. A. McKay, do, R.R. 1	.....	14 $\frac{1}{2}$	4 $\frac{1}{2}$	17 $\frac{1}{2}$	13 $\frac{1}{2}$	16	66 $\frac{1}{2}$
John Ward, do, R.R. 4	.....	13 $\frac{3}{4}$	4 $\frac{1}{2}$	12	13 $\frac{1}{2}$	16	59 $\frac{3}{4}$
PEEL.							
TORONTO TP. AGR. SOCIETY.							
<i>Judge—Lee Cascadden, Aylmer West.</i>							
J. B. Ross, Streetsville	Ensilage.....	18 $\frac{1}{2}$	5	17	13	31	84 $\frac{1}{2}$
Jas. D. Steen, Meadowville ...	do	17 $\frac{1}{2}$	4	17	13	29	80 $\frac{1}{2}$
M. B. Nicholson, Streetsville ..	Wisconsin No. 7...	17 $\frac{1}{2}$	5	18	12	28	80
W. J. Drinkwater, do	Ensilage.....	16 $\frac{1}{2}$	5	18	13	27	79 $\frac{1}{2}$
H. R. Kay, Brindale .....	.....	14	5	16	13	30	78
Wm. Maxwell, Streetsville, R.R. 2	Ensilage.....	15	4	17	12	29	77
J. E. Weylle, do .....	.....	14	4	16	14	28	76
D. H. McCaugherty, do	Ensilage.....	11 $\frac{1}{2}$	5	16	12	26	70 $\frac{1}{2}$
PERTH.							
FULLARTON, LOGAN AND HIBBERT AGR. SOCIETY.							
<i>Judge—Geo. E. Foster, Honeywood.</i>							
Geo. Hillebrecht, Brodhagen ...	Wisconsin No. 7..	18	4	19	15	29	85
Geo. Krauskopf, Mitchell, R.R. 3	Bailey.....	17 $\frac{1}{2}$	3	18 $\frac{1}{2}$	14	31	84
Jas. Scott, Cromarty, R.R. 1..	do	17	4	17	13	32	83
Robt. Hodgson, Dublin, R.R. 2.	do	17	4 $\frac{1}{2}$	20	15	26	82 $\frac{1}{2}$
Russ. Scott, Cromarty, R.R. 1..	do	16	4 $\frac{1}{2}$	19	13	28	80 $\frac{1}{2}$
H. Greenwood, Mitchell, R.R. 1	White Cap.....	16	4	17	12	31	80
Jno. A. Elliott, do, R.R. 3	Bailey.....	15 $\frac{1}{2}$	4	20	14	24	77 $\frac{1}{2}$

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.* CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
PERTH.—Continued.		(20)	(5)	(20)	(15)	(40)	(100)
FULLARTON, LOGAN AND HIBBERT AGR. SOCIETY.—Continued.							
N. Malcolm, Mitchell, R.R. 3	Wisconsin No. 7..	16	3	12	14	29	74
Wm. Forrester, do	Bailey.....	16	4	10	12	28	70
S. C. Millson, do R.R. 1	White Cap.....	13	3½	12	12	21	61½
W. G. Millson, Munro, R.R. 1.	White Cap. & Wisconsin No. 7....	13½	3½	.....	8	28	53
N. Heal, do R.R. 1.	Golden Glow.....	18	4½	.....	15	15	52½
* STRATFORD AGR. SOCIETY.							
Judge—C. C. Rokeby, Port Rowan, R.R. 2.							
R. Thompson, St. Paul's, R.R. 2	W. C. Y. Dent.....	17½	4½	19½	10	27½	79
N. Monteith, Stratford, R.R. 2	Wisconsin No. 7..	17	4½	16½	14	26	78
Arbogast Bros., Sebringville ..	Golden Glow.....	16½	4½	16	11	27½	75½
F. Bell, St. Paul's, R.R. 4	White Cap.....	16½	4½	18½	10	25½	75
M. Ballantyne, Stratford	Mixed.....	16½	4	17	10	27	74½
H. Thistle, St. Paul's, R.R. 1..	Pride of the North	15½	4	17	10	26	72½
J. Litt, Sebringville	W. C. Y. Dent.....	16	4½	17½	10	24	72
Jno. Murray, St. Paul's, R.R. 2	W. C. Y. & Wisconsin No. 7....	16½	4½	17½	10	23	71½
E. Dunsmore, Stratford	Mixed.....	14½	4½	18½	10	22½	70
F. Dunsmore, do R.R. 2	White Cap & Wisconsin No. 7	14	4½	14	10	22	64½
Jas. Hyslop, do R.R. 2	Wisconsin No. 7..	14	4½	10	10	20	58½
M. Arbogast, do R.R. 5	White Cap & Golden Glow....	13	4½	15½	5	20	58
PRINCE EDWARD.							
AMELIASBURG AGR. SOCIETY.							
Judge—Jas. Boyd, Pickering, R.R. 2.							
J. R. Anderson, Mountainview.	Wisconsin No. 7... 16	4	20	14	36	90	
Jno. A. Walker, Rossmore	White Cap..... 16	4	17	14	33	84	
E. E. Wallbridge, do	do	15	4	16	14	32	81
Jno. Cairns, do	Wisconsin No. 7... 13	4	16	12	34	79	
H. Wallbridge, do	do	14	4	15	14	31	78
D. W. Valteau, do	White Cap..... 15	4	12	13	32	76	
Jas. Broad, do	Ensilage..... 14	2	13	14	32	75	
H. Young, do	White Cap..... 14	4	18	14	23	73	
Jas. Wallbridge, do	Ensilage..... 13	4	13	14	28	72	
Jno. A. Weese, do	 11½	4	13	14	28	70½	
L. Wallbridge, do	White Cap..... 15	4	10	12	29	70	
W. H. C. Roblin, Ameliasburg.	Longfellow..... 10	4	12	14	26	66	
H. Jose, Rossmore	Wisconsin No. 7... 14	5	10	14	22	65	
J. E. Redner, Rednerville	Imp. Leaming.... 12	4	10	12	11	49	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Total of scores.
PRINCE EDWARD.— <i>Continued.</i>		(20)	(5)	(20)	(15)	(40)	(100)
PRINCE EDWARD AGR. SOCIETY.							
<i>Judge—Jas. Boyd, Pickering, R.R. 2.</i>							
M. A. Foster, Bloomfield, R.R. 2	Mam. Sweet.....	18	3	18	14	37	90
B. Leavens, do	Wisconsin No. 7..	16	4	19	14	35	88
J. E. Huff & Son, do R.R. 1	Pride of Nashua..	17	3	19	14	34	87
W. J. Barber, Rossmore	Wisconsin No. 7..	16	4	17	14	35	86
H. White, Picton, R.R. 1	Imp. Leaming.....	17	4	19	9	35	84
Wm. H. Gough, Bloomfield ...	Wisconsin No. 7..	16	4	16	14	33	83
Herb. McDonald, do R.R.	Ensilage.....	16	5	19	6	36	82
M. Gilbert, Demorestville, R.R. 3	Pride of Nashua..	16	4	15	13	33	81
Fred. Hobbs, Bloomfield	Wisconsin No. 7..	16	4	19	10	31	80
W. J. Gerow, do	Leaming.....	17	4	19	12	27	79
R. Leavens, do	Ensilage.....	15	4	16	10	32	77
E. B. Purtelle, do	Wisconsin No. 7..	14	3	20	13	25	75
T. F. Spafford, Picton	do	14	4	17	14	24	73
Peter Cave, Bloomfield	Ensilage.....	16	4	12	8	31	71
G. Thompson, do	White Cap.....	14	4	15	12	23	68
H. W. Bedell, do	Ensilage.....	12	4	12	9	24	61
G. H. Bolton, Picton, R.R. 6 ..	Longfellow.....	10	4	14	10	21	59
SIMCOE.							
TINY AND TAY AGR. SOCIETY.							
<i>Judge—Walter Baldock, Malton, R.R. 2.</i>							
R. M. Hopkins, Victoria Harbour	Wisconsin No. 7..	18	4	18	12	35	87
N. Rumney, Midland, R.R. 1 ..	N. Dakota.....	17½	4	17	14	34	86½
S. Leonard, Wyebridge	Wisconsin No. 7..	16	4	17	14	35	86
Levi Jones, Midland, R.R. 1..	do	15	4	18	13	35	85
Jno. Runney, Victoria Harbour, R.R. 1	do	16½	4½	17	13	33	84
J. A. Swan, Victoria Harbour..	do	16	4	18	13	32	83
F. Edwards, Midland, R.R. 1 ..	.....	16	4	17	12	33	82
Wm. Faint, Jr., do R.R. 1 ..	Wisconsin No. 7..	16	4	16	12	32	80
Wm. Charles, Wyebridge	do	15	4	15	12	32	78
Jas. Reynolds, do	do	15	4	15	12	31	77
H. Shakell, Midland	do	14	4	16	12	30	76
VICTORIA.							
ELDON AGR. SOCIETY.							
<i>Judge—D. J. Gibson, Bowmanville, R.R. 4.</i>							
A. Veale, Woodville	Wisconsin No. 7..	17	5	18	14	35	89
Jno. Ward, Lorneville	Mixed.....	16	5	19	14	32	86
Geo. McKague, Woodville	Wisconsin No. 7..	17	4	18	14	32	85

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	Yield of fodder and grain.	Totals of scores.
VICTORIA.— <i>Continued.</i>		(20)	(5)	(20)	(15)	(40)	(100)
ELDON AGR. SOCIETY.— <i>Con.</i>							
R. P. Hill & Son, Woodville	Wisconsin No. 7 & Yel. Dent.....	15	5	17	14	33	84
W. G. Wilson & Sons, do	Mixed.....	16½	4	16	13	34	83½
Jas. Thomas, do	do	16	5	17	13	31	82
Jas. E. Dixon, do	Wisconsin No. 7 & Golden Glow...	14	5	16	13½	31	79½
W. J. Smith, Lorneville	Compton's Early..	13	5	16	13	31	78
W. J. Trebilco, Woodville	Mixed.....	14	5	13	13	32	77
Wm. Newman, do	Leaming.....	11	5	10	14	28	68
WATERLOO.							
SOUTH WATERLOO AGR. SOCIETY.							
<i>Judge—J. A. Kernahan, Maxwell.</i>							
Robt. Arthur, Branchton, R.R. 1	Wisconsin No. 7..	18½	5	19½	14	37	94
G. R. Barrie, Galt, R.R. 7	Cloud's Early.....	19½	4½	19	15	35	93
J. W. Studiman, Branchton ...	Golden Glow.....	16	4	15	14	33½	82½
J. A. Slater, Galt, R.R. 4	Wisconsin No. 7..	16	4	13	14	35	82
T. M. Jamieson, Hespeler, R.R. 1	do	16	4	17	14	30½	81½
A. B. McPhail, Galt, R.R. 4	Eureka.....	16	4	17	13	31	81
A. S. Clemens, Hespeler, R.R. 1	Golden Glow.....	12½	3	18	13	31	77½
E. Z. Kemkes, Branchton, R.R. 1	Wisconsin No. 7..	15½	3½	8	14	32½	71½
Wm. C. Shaw, Hespeler, R.R. 2	do	13½	3½	16	13½	24	70½
Jas. R. Wood, Preston, R.R. 2..	Bailey.....	14	3	10	12	29	68
Jno. Brown & Sons, Galt	do	15½	4	10	14	24	67½
R. E. Cowan, do R.R. 3	Wisconsin No. 7..	12½	4	7	12	23	58½
J. W. Harvey, do	Golden Glow.....	12	3	8	12	22	57
WELLAND.							
BEETIE AGR. SOCIETY.							
<i>Judge—R. H. Abraham, B.S.A., Chatham, R.R. 1.</i>							
J. W. Jewson, Fort Erie, R.R. 1	E. Rochester.....	17	4	18½	14½	37	91
W. W. Bowen, Ridgeway	Silo King.....	15	4	18½	13½	34	85
G. W. Miller, Stevensville, R.R.	Imp. Leaming....	13½	4	17	12½	32½	79½
J. R. Phillips, Fort Erie, R.R. 1	Wisconsin No. 7..	14½	3½	17	12	31½	78½
J. F. Miller, Stevensville, R.R. 2	do	13	4	17	10½	32½	77
Geo. Sexsmith & Son, Ridgeway, R.R. 2	do	13	4	16	12	28	73
M. W. Sexsmith, Ridgeway, R.R. 2	do	13½	4	17	10	27	71½
D. L. Hershey, Ft. Erie, R.R. 1	White Cap.....	14	3	15	10	27	69
W. Woehl, Bridgeburg, R.R. 1	Golden Glow.....	13	4	15	10	26	68
Maj. Jas. E. Laur, do R.R. 1	do	13	4	14	10	26	67
W. J. Wale, do	Longfellow.....	12	3	12	10	26	63

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
WELLINGTON.		(20)	(5)	(20)	(15)	(40)	(100)
CENTRE WELLINGTON AGR. SOCIETY.							
<i>Judge—Lee Cascadden, Aylmer West,</i>							
L. Sargent, Fergus	Ensilage.....	20	5	20	15	36	96
Jno. Greigson, do R.R. 3	do	17	5	20	13	33	88
W. A. Atkinson, do R.R. 4	do	20	5	19	14	29	87
J. T. Benham, Rockwood, R.R. 3	do	20	5	18	14	29½	86½
W. J. Connon, Elora	do	18	5	20	14	29	86
John Lowe, do	do	15½	5	17	14	34	85½
J. H. Anderson, Fergus, R.R. 4	do	16	5	17	14	33	85
W. Ransom, do R.R. 4	do	17½	5	17	14	31	84½
C. Mighton, Elora, R.R. 1	do	18	5	18	13	30	84
R. Caldwell, Fergus	do	17½	5	20	14	25	81½
F. W. Ewing, Elora, R.R. 1 ..	do	17	5	18	15	26	81
J. L. Caldwell, Fergus, R.R. 4	do	16	5	18	13	27	79
Thos. Cox, Rockwood, R.R. 4	do	12½	5	18	14	29	78½
R. C. Cumming, Elora, R.R. 1 ..	do	16	5	18	12	27	78
W. Hutchison, Rockwood, R.R. 1	do	16½	5	18	10	28	77½
G. B. Pritchard, Elora, R.R. 1	do	16	5	17	13	26	77
G. Roberts, do R.R. 1	do	13½	5	20	12	26	76½
Ross Bros., Fergus	do	14	5	14	13	29	75
WENTWORTH.							
WATERDOWN AGR. SOCIETY.							
<i>Judge—J. A. Kernahan, Maxwell.</i>							
G. M. Lambier, Millgrove	Leaming.....	18½	4½	20	14½	31	88½
D. C. Flatt & Son, Hamilton, R.R. 2	Eureka.....	19½	3	18½	15	32	88
H. J. Bennett, Campbellville, R.R. 3	Leaming.....	16	4½	19	14	34	87½
J. Bennett, Campbellville R.R. 3	do	17	4	18	14	34	87
G. Mills, Carlisle	do	17½	4	19½	13	32	86
Jas. Attridge, Waterdown	do	17	4	17	14	33	85
H. A. Drummond & Son, Millgrove, R.R. 1	Big Crop.....	18	4	18	14	30½	84½
R. Langton, Waterdown	Leaming.....	16½	4	10	14	31½	76
Wm. Attridge, do	Wisconsin No. 7 ..	15	4½	11	14	31	75½
Wm. Thompson, do R.R. 1	do	14½	4½	10	13	33	75
G. B. Stock, do	Leaming.....	16½	4	10½	14	29	74
W. Gallin, do	Wisconsin No. 7 ..	12	4	12	12	23½	73½
Peter Ray, do	Leaming.....	14	4	15	13	27	73
W. A. Drummond & Sons, Waterdown, R.R. 1	Big Crop.....	13	3	8	14	29	67
Geo. Pearson, Waterdown	Leaming.....	10	4	10	14	22	60

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
ALGOMA.		(15)	(17)	(20)	(10)	(38)	(100)
CENTRAL ALGOMA AGR. SOCIETY.							
<i>Judge—Thos. Delworth, Weston.</i>							
Edward Allen, Sault Ste. Marie	Carman No. 1....	13	15	20	10	36	94
Henry Knight, do	do	13	16	16½	10	38	93½
W. W. McAuley, Goulais Bay ..	Carman No. 2....	15	15	19	8	36	93
M. McLean, do ..	Beauty of Hebron	12	15	18	10	37	92
Thos. Avery, Sault Ste. Marie ..	Carman No. 1....	13	13½	19	10	34	91½
Geo. Farmer do ..	Green Mountain..	14	17	20	10	30	91
C. W. Eggesfield, do ..	Carman No. 1....	15	16	18	10	29	88
W. J. Conway, do ..	Green Mountain..	13	15	16	9	34	87
J. K. Tooles, do R.R. 2	Carman No. 1....	11	16	19	8	30	84
Chas. Somes, Goulais River	Money Maker....	10	14	17	10	32	83
W. J. Alderson, Sault Ste. Marie	Sunlight.....	11	17	15	7	28	78
David Fleming, do	Davies' Warrior..	10	16	15	7	29	77
R. M. Moore, do	Carman No. 2....	10	15	15	9	26	75
Jno. A. Moore, do R.R.2	Green Mountain..	7	13	10	10	26	66
J. Nelson McAuley, Goulais Bay	Beauty of Hebron	7	14	10	8	22	61
NORTH SHORE AGR. SOCIETY.							
<i>Judge—Thos. Delworth, Weston.</i>							
W. Majury, Echo Bay	Early Pride.....	15	16	18	10	35	94
Ed. Pollard, do	Early Queen.....	14	15	18	10	35	92
M. T. Larocque, Laird	Gold Coin.....	15	17	12	10	33	87
David Hedrick, Echo Bay	Early Pride.....	14	14	17	10	31	86
Chas. Stewart, Bar River	Irish Cobbler....	11	11	15	10	37	84
W. Barkley, do	Carman.....	14	12	19	10	27	82
F. A. Newman, do	Empire State.....	11	16	18	10	26	81
Carson Moore, MacLennan	Gold Coin.....	11	16	17	10	26	80
Geo. Brody, Bar River	do	11	15	16	9	28	79
Luke Hounslow, Echo Bay	Irish Cobbler....	11	17	16	9	25	78
C. A. Hurley, do	Carman.....	12	12	18	9	26	77
Jno. Booth, Bar River	do	9	16	15	5	26	72
Duncan Fremlin, do	Irish Cobbler....	9	16	10	10	24	69
ST. JOSEPH ISLAND AGR. SOCIETY.							
<i>Judge—J. J. Davis, London, R.R. 7.</i>							
Geo. Smedley, Richard's Landing	Green Mountain..	13½	17	19	9	37	95½
W. H. Canfield, do	Empire State....	15	17	19	10	34	95
Edgar Rains, Sea Gull	Davies' Warrior..	15	15	17	10	33	90
J. Brown, Carterton	Green Mountain..	14	17	18	10	29	88
A. W. Stableforth, Richard's Ldg.	do ...	12	16	19	10	30	87

*General appearance—Considering method of planting, stand of crop, and vigor of growth.

†Apparent Yield.—Considering weight of marketable potatoes, per square yard, quality, smoothness and uniformity of shape, state and uniformity of maturity, and freedom from sunburn.

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	Apparent yield.	Totals of scores.
		(15)	(17)	(20)	(10)	(38)	(100)
ALGOMA.—Continued.							
ST. JOSEPH ISLAND AGR. SOCIETY.							
<i>—Continued.</i>							
H. Underhill, Richard's Landing	Green Mountain..	13	17	16	10	30	86
Mrs. A. W. Ross, do	Gold Coin.....	12	16	15	10	32	85
Chas. Young, do	Irish Cobbler....	13	15	19	10	27	84
Thos. White, Sr., do	Davies' Warrior..	12	17	19	10	26	84
J. Cheer, do	Green Mountain..	11	15	18	10	28	82
Wm. See, do	Carman.....	10	16	18	10	27	81
Geo. Burke, do	do	10	17	15	10	28	80
R. R. Rains, do	Early King.....	12	15	15	10	28	80
Bert. Harrison, do	Green Mountain..	13	16	19	10	22	80
H. Matheson, do	do	11	15	18	10	23	77
J. Fyfe, do	do	12	17	14	10	17	70
THESSALON AGR. SOCIETY.							
<i>Judge—J. J. Davis,</i>							
<i>London, R.R. 7.</i>							
J. Shoules, Cloudslee	Cornet.....	15	17	18	8	37	95
H. Hagen, Thessalon, R.R. 2	Beauty of Hebron	15	17	18	10	34	94
J. D. McLennan, do R.R. 2	Green Mountain..	13½	17	20	9	32½	92
Jno. McDougal, Sowerby	Beauty of Hebron.	14	16	17	10	34	91
Jas. Mills, Bruce Mines, R.R. 1	Carman No. 1....	13	17	15	10	35	90
D. McLennan, Thessalon, R.R. 2	Empire State....	13	17	15	10	34	89
Wm. Mitchell, Bruce Mines ...	Carman No. 1....	11	17	17	10	33	88
Wm. Weir, Thessalon, R.R. 2	Green Mountain..	11	17	19	10	30	87
Thos. Cordukes, do R.R. 2	Davies' Warrior..	12	17	20	10	27	86
T. W. Bailey, do R.R. 2	Green Mountain..	11	17	17	9	31	85
N. S. Pace, Bruce Mines, R.R. 1	Davies' Warrior..	10	17	18	10	31	86
A. I. Hopkins, Thessalon, R.R. 2	Green Mountain..	11	17	18	10	28	84
Isaac Leach, do	Beauty of Hebron.	9	17	20	8	26	80
BRUCE.							
N BRUCE AND SAUGEEN AGR. SOCIETY.							
<i>Judge—J. A. McDiarmid,</i>							
<i>Batteau, R.R. 1.</i>							
Wm. Groathead, Southampton ..	Red Elephant....	12	15	20	9	29	85
Jas. B. Muir, Port Elgin, R.R. 3	Noxall.....	13	16	18	10	26	83
S. Sparks, do R.R. 2	Empire State....	11	16	17	9	27	80
John Baker, do	Red Elephant....	13	14	17	10	25	79
D. E. Campbell, do	Empire State....	13	16	14	9	26	78
Albert Upshall, do R.R. 4	Davies' Warrior..	12	16	16	10	23	77
W. J. Pierson, do R.R. 2	Empire State....	12	15	17	9	23	76
Port Elgin Fruit Growers' Assn.,							
Port Elgin	do	11	14	19	10	21	75
A. B. Reinhart, Port Elgin, R.R. 2	Edmonton.....	10	13	19	9	21	72
W. H. McClinton, do R.R. 3	Noxall.....	10	15	17	9	20	71
A. Curtiss, do	do	10	13	16	9	19	67
J. A. Reoch, do R.R. 4	Purple Cup.....	8	13	10	10	18	59

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	† Apparent yield.	Totals of scores.
BRUCE.— <i>Continued.</i>		(15)	(17)	(20)	(10)	(38)	(100)
WIARTON AGR. SOCIETY.							
<i>Judge—J. A. McDiarmid, Batteau, R.R. 1.</i>							
H. F. Loney, Wiarton, R.R. 2..	Amer. Wonder...	13	16	17	9	31	86
E. J. Loney, Oxenden	Lincoln.....	13	15	17	8	30	83
F. Buckland, Wiarton, R.R. 2..	Amer. Wonder...	12	15	18	9	26	80
Geo. H. Steacy, do	do	13	16	15	9	26	79
Geo. H. Loney, Oxenden	Empire State...	10	16	18	8	25	77
Theo. Dance, Wiarton	Little Wonder...	11	15	16	8	24	74
H. Baldwin, do	W. Elephant.....	11	15	15	8	24	73
Wm. Lambke, do	Dempsay Seedling	11	14	16	8	23	72
Austin Baldwin, do	W. Elephant.....	11	14	15	8	23	71
D. W. Porter, do	Beauty of Hebron.	10	16	15	5½	23	69½
Albert Lambke, do	do	9	15	15	8	22	69
R. E. Stacey, do	Amer. Wonder...	10	14	13	8	22	67
DUFFERIN.							
DUFFERIN AGR. SOCIETY.							
<i>Judge—Jno. McDiarmid, Lucknow.</i>							
Walter Smith, Amaranth, R.R. 1	Green Mountain..	14½	15½	18½	9	34½	92
Percy Reid, do R.R. 1	Delaware.....	12½	15½	18	8½	35½	90
Freeman Leader, Orangeville, R. R. 2	Cobbler.....	13	16	16	9	35	89
Geo. A. McKenzie, Camilla	Davies' Warrior..	13½	15	18	9	33	88½
A. Norris, Orangeville, R.R. 2	Green Mountain..	12½	15½	18½	9½	32	88
M. V. Armstrong, Mono Mills, R.R. 1	Davies' Warrior..	13	15	18	9	31	86
J. J. Ferns, Amaranth Station	Green Mountain..	13	15½	17½	9	30	85
W. P. Dodds, Orangeville	Delaware.....	14½	15	18	9	28½	84½
Jos. Jackson, do	Green Mountain..	12½	15	18	9	30	84½
J. A. Cornelius, Amaranth ...	do	13½	15	18	9	28½	84
W. O. Nodwell, Waldemar, R.R.2	do	12½	15	18	9	29	83½
Josh. Bradley, Amaranth	Delaware.....	13	15	18	8	28	82
Ben. Cook, Orangeville, R.R. 6	do	11½	15½	17	8	30	81½
Nelson Black, do R.R. 2	Green Mountain..	11	14½	16	9	31	81½
M. McCormick, Amaranth, R.R.1	do	11½	15	17	9	29	81½
W. Morrow, Orangeville, R.R. 3	do	12	15	16	9	29	81
David Tremble, do R.R. 3	do	11	15	17	7½	30½	80½
W. Ewing, Camilla	Davies' Warrior..	12	15	18	8	27½	80½
Jno. Turner, do	World's Fair....	11½	15	17	9	27½	80
W. H. Black, Amaranth Station	Green Mountain..	12	15	17	8	27½	79½
J. J. Leighton, Orangeville	do	11½	15	17	8½	27½	79½
C. G. Hughson, do	Cobbler.....	10½	15	17	8	28½	79½
W. H. Gillespie, do R.R. 3	do	13	15	16	8	27	79
Robt. Reid, Camilla, R.R. 4....	Rural New Yorker	11½	15	17	7	28½	78½
Henry Hanna, Waldemar, R.R.2	Green Mountain..	10	14	18	9	27	78
Geo. Crozier, Mono Mills, R.R. 5	World's Fair....	12½	15	18	9½	33	77½

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	† Apparent yield.	Totals of scores.
		(15)	(17)	(20)	(10)	(38)	(100)
DUFFERIN.—Continued.							
DUFFERIN AGR. SOCIETY.—Con.							
Peter Norris, Orangeville, R.R. 2	Green Mountain..	12	14½	17	8	26	77½
J. Harshaw, do	do	11	14	17	8	28½	77½
J. H. Anderson, do R.R. 2	World's Wonder..	11	15	16	8	27	77
Isaiah Hammond, do	Green Mountain..	10	15	17½	8	16½	76½
Wm. Baker, do R.R. 1	Cobbler.....	10½	14	16	7½	28½	76½
J. H. Moote, do R.R. 2	Beauty of Hebron.	10½	15	16	7	28	76½
Jas. Johnston, do R.R. 1	World's Fair.....	11	14	16	9	26	76
Geo. Lightle, Amaranth	Green Mountain..	11½	15	17	7	25	75
Jno. Johnston, Orangeville	World's Fair.....	10½	14½	15	8	27½	74½
Winnifred Bennett, do	Delaware.....	10	14	16	8	25½	73½
EAST LUTHER AGR. SOCIETY.							
<i>Judge—Jno. McDiarmid, Lucknow.</i>							
Rich. King, Grand Valley	Delaware.....	12	15	18	9	32½	86½
Eli Newson, do	do	12½	15½	18	9	28½	83½
Jas. Crane, do	Up-to-Date.....	12½	15	17	9	28	81½
Henry Berry, do R.R. 3	Delaware.....	10½	15	17	9	29½	81
Jos. Carney, Amaranth Station	Cobbler.....	11	15	17	8	28½	79½
W. J. Crane, Grand Valley	Up-to-Date.....	12	14	17	9	27	79
Thos. Townsend, do	Cobbler.....	10½	14	16	8½	28½	77½
W. E. Turner, do R.R. 3	Delaware.....	11	14½	16	9	26½	77
W. A. Wansborough, do	Burpee.....	10	14	15	8	26	73
W. Willmott, do R.R. 3	Green Mountain..	10	14	15	8	25	72
R. T. Forgrave, do	Cobbler.....	9½	14	16	8	24	71½
DUNDAS.							
MOUNTAIN AGR. SOCIETY.							
<i>Judge—W. H. C. Roblin, Ameliasburg.</i>							
Chas. Shaver, S. Mountain ...	Green Mountain..	14	16	18	9½	31	88½
J. E. Montgomery, do R.R. 1	White Star.....	13	15	16	9	27	80
Frank Bros., do	do	12	15	17	9½	26	79½
W. T. Begg, do	Amer. Wonder...	13	15	16	7	28	79
Edwin Gilroy, do	Uncle Sam & Gold Coin	13	13	17	8	27	78
A. Collison, do	Green Mountain..	12	15	16	9	25	77
Jas. Boyd, do	Gold Coin.....	13	13	15	8	25	74
Jno. Forrester, do	Green Mountain..	13	13	16	7	24	73
Calvin Ellis, do	do	12	14	14	6	23	69
Henry Melon, do	Amer. Wonder...	9	14	10	8	27	68
R. K. Graham, do	White Star.....	11	13	14	8	20	66
C. Mallen, do	Amer. Wonder...	12½	13	8	8	23	64½
J. F. Forrester, do	Poor Man's Friend	11	14	10	8	20	63

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

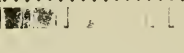
POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	† Apparent yield.	Totals of scores.
GRENVILLE.		(15)	(17)	(20)	(10)	(38)	(100)
MERRICKVILLE AGR. SOCIETY.							
<i>Judge—W. H. C. Roblin, Ameliasburg.</i>							
N. H. Lang, Merrickville	Green Mountain..	14	16	18	10	27	85
M. T. Carson, do	White Star.....	13	16	18	9	26	82
H. L. Wilson, do	Green Mountain..	13	15	16	9	28	81
Jas. Knapp, do	Irish Cobbler....	13	14	10	9	28	74
W. J. Dilworth, do	Amer. Wonder...	10	14	16	8	21	69
Garnet Lucas, do	Amer. Wonder & Early Rose....	13	15	13	7	19	67
Harold Jakes, do	Green Mountain..	11	12	13	7	22	65
T. Merrifield, Burritt's Rapids do	do	10	14	15	5	20	64
Jos. L. Hutton, Merrickville ...	White Star.....	12½	13	14	6	18	63½
C. Floyd Barber, do	Green Mountain..	11	13	12	6	20	62
SPENCERVILLE AGR. SOCIETY.							
<i>Judge—W. H. C. Roblin, Ameliasburg.</i>							
B. E. Holmes, Spencerville	Amer. Wonder....	14	16	19	9	32	90
Byron Bennett, do	Burbanks.....	13	16	15	9	34	87
A. A. Goodin, do	White Star.....	14	15	18	8	31	86
And. Lawrence, do	Burbanks.....	13½	16	17	9½	29	85
R. J. Kelso, do	Empire State....	13½	14½	19	9½	28	84½
R. W. Wallace, do	Pride of Britain..	13	15	15	8	30	81
H. W. Kelso, do	New King & Empire State...	12	13	18	9	25½	77½
Percy Ault, do	Pride of Britain..	13	14	13	8	26	74
Delbert Bass, do	W. Elephant.....	12	13	14	6	27	72
Fred. Cleary, do	Green Mountain..	11	14	13	7	24	69
Bert Constable, do	Great Divide.....	11	15	12	5	24	67
GREY.							
KILSYTH AGR. SOCIETY.							
<i>Judge—J. A. McDiarmid, Batteau, R.R.</i>							
El. H. Coulter, Owen Sound, R.R. 3	Amer. Wonder....	12½	16	16	8	29	81½
R. S. Mundle, do R.R. 3	Vulcan.....	12	16	16	8	28	80
W. J. Beckett, do R.R. 4	Amer. Wonder....	12½	16	16	8	27	79½
Boyd Porteous, do R.R. 3	do	12	16	16	8	26½	78½
Wm. Breen, Tara, R.R. 5	Vulcan.....	13	16	15	8	25½	77½
Mel. Linn, Owen Sound, R.R. 3	Delaware.....	12	15	15	8	25½	75½
Henry Ford, do R.R. 3	Blue Clam.....	11	16	16	8	24	75
Warren Thompson, Tara, R.R. 4	Amer. Wonder....	12	16	13½	8	25	74½
Geo. Brooks, Owen Sound, R.R. 3	Hustler.....	11	16	15	8	24	74
W. H. Marshall, do R.R. 5	Blue Clam.....	10	16	15	8	24	73
Geo. A. Sergeant, do	Amer. Wonder....	11	15	12	8	25	71
Peter Garvie, Tara, R.R. 4	Blue Clam.....	9	15	16	8	22	70
Vernon Barbour, Owen Sound, R.R. 4	Vulcan.....	10	16	14	8	21	69
Miss H. Garvie, Tara, R.R. 4..	Blue Clam.....	9	14	15	8	20	66

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
GREY.— <i>Continued.</i>		(15)	(17)	(20)	(10)	(38)	(100)
ROCKLYN AGR. SOCIETY.							
<i>Judge—T. W. McCracken, Meadowvale.</i>							
A. Hopkins, Rocklyn, R.R. 2.	Amer. Wonder....	13	15½	18	7	33½	87
J. W. Patton, do R.R. 2..	do	13	15	18	10	30½	86½
Jno. Boyd, Markdale	Early Elephant...	13	15	19	10	28½	85½
W. J. Lush, Rocklyn	Amer. Wonder....	13	15	18	10	28½	84½
Angus McInnis, Markdale, R.R.3	Noxall.....	12	15	17	9	27½	80½
J. A. Perry, Fairmount	Amer. Wonder....	11	12	16	10	31	80
Jno. Yeadell, Rocklyn, R.R. 2.	do	10	14	15½	10	28½	78
M. E. Abercrombie, Meaford, R.R. 4	do	10	13	16	10	28½	77½
Gord. Erskine, Markdale, R.R. 2	Elephant.....	13	13	15	8	28	77
T. Langtree, Fairmount	Amer. Wonder....	8½	13	16	9	30	76½
J. J. Johnson, Markdale, R.R. 2	Elephant.....	10	13	15	7	28½	73½
S. Clarke, do .....	.....	9	14	14	7	25	69
HALTON.							
NELSON AND BURLINGTON AGR. SOCIETY.							
<i>Judge—J. H. McKee, Shelburne.</i>							
J. Hetherington, Campbellville	Carman.....	12½	16	18	9½	27	83
Vernon Dynes, Burlington	Prince Henry....	12	15½	19	9	25½	81
F. Wilkerson, Freeman, R.R. 2	Dooley.....	11½	15	19	9½	24	79
Colin Smith, do R.R. 2	Delaware.....	11	14	13	9	30½	77½
Jos. Pickett, do R.R. 2	Dooley.....	11½	15	16	9½	25	76
Jno. Heslop, do R.R. 2	do	11	16	17	9½	21½	75
Jno. Wilkerson, Burlington ...	Delaware.....	11	15	15	8	25½	74½
W. L. Smith, Freeman, R.R. 2	do	10½	14	15	9	24	72½
Jabez Clarke, Burlington	Sir W. Raleigh...	11½	14	18	9	19½	72
H. M. Pettit, Freeman, R.R. 3	Delaware.....	8½	13	19	9	19	68½
HASTINGS.							
MADOC AGR. SOCIETY.							
<i>Judge—D. Fallis, Millbrook.</i>							
Jas. Moore, Queensboro	Uncle Sam.....	15	15	18	10	29	87
Jno. Moore, do	do	13	12	17	10	25	77
Henry Kells, Madoc	do	15	15	17	6	21	74
Herb. Blakeley, Eldorado	North Star.....	12	15	15	6	25	73
Robt. McCann, do	Uncle Sam.....	12	14	12	9	25	72
Sam. McCarry, do	Mortgage Lifter...	12	12	17	7	23½	71½
F. A. Comerford, do	Uncle Sam.....	13	14	18	7	19	71
Thos. Pack, do	Comet.....	12	14	12	10	22	70
Jno. Keene, do	Uncle Sam.....	10	15	18	7	19	69
A. Nicholson, Madoc	do	12	12	12	9	23	68

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.* POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	† Apparent yield.	Totals of scores.
		(15)	(17)	(20)	(10)	(38)	(100)
HASTINGS.—Continued.							
MADOC AGR. SOCIETY.—Con.							
Jno. Chambers, Eldorado	Grassy.....	12	14	12	10	19	67
W. P. Conlin, do	Uncle Sam.....	13	14	12	7	21	67
David Lough, Marmora, R.R. 2	Irish Cobbler.....	11	13	12	10	20	66
Jno. Rollins, Cooper	Gold Coin.....	13	10	14	7	21	65½
W. T. Harris, Madoc	Uncle Sam.....	12	10	15	10	18	65
Jos. Chambers, Eldorado	do	12	12	12	6	22	64
Geo. Robinson, do	do	12	10	18	6	18½	63½
I. Broadworth, Madoc	do	12	12	15	5	19	63
Hugh Morrison, Eldorado	Comet.....	12	12	12	10	16	62
Chas. Robinson, do	Uncle Sam.....	11	10	16	5	19	61
J. S. Empey, do	do	12	12	13	6	17	60
J. C. Smith, Madoc	do	12	10	13	3	21	59
Harry Tokley, Queensboro	do	12	12	10	5	19	58
H. Rollins, Cooper	do	10	7	15½	6	19	57½
G. A. Ketcheson, Eldorado	do	11	8	10	10	18	57
J. A. Empey, do	Mortgage Lifter..	12	12	8	6	16	54
J. A. Caskey, Madoc	Uncle Sam.....	10	7	15	3	18	53
Fred. Stewart, Eldorado	do	11	6	12	4	16	49
WOLLASTON AGR. SOCIETY.							
<i>Judge—D. Fallis, Millbrook.</i>							
David Moore, The Ridge	Gold Coin.....	13	14	17	10	30	84
C. McGregor, do	Empire State.....	14	15	18	10	25	82
D. Maitland, do	Green Mountain..	12	14	14	10	29	79
Albert Danford, Coe Hill	Beauty of Hebron..	9	13	18	9	21	70
Jno. Gilroy, do	do	11	14	15	10	19	69
Dan. Henderson, The Ridge ..	do	11	14	14	6	23	68
Chas. Russan, Glen Alda	do	12	15	15	5	19	66
C. E. Moffatt, Coe Hill	do	10	14	12	10	18	64
H. Hennessy, do	do	11	12	12	7	21	63
And. Bird, do	Rural New Yorker	11	15	12	5	18	61
C. H. Rollins, do	Eureka.....	8	12	12	9	19	60
H. Johnston, do	Mortgage Lifter..	10	12	14	5	14	55
Albert Ingram, Faraday	Green Mountain..	8	12	10	4	15	49
KENORA.							
KENORA AGR. SOCIETY.							
<i>Judge—T. G. Raynor, Ottawa.</i>							
Gould Bros., Kenora	Early Rose.....	14	14	18½	10	31	87½
A. Ascough, do	Delaware or Green Mountain.....	13½	15	19½	10	24	82
S. Sunden, Keewatin	do	13	16	18	10	23½	80½
Wm. Tew, Kenora	Delaware or Green Mountain.....	13½	8	19½	10	26½	77½
Jas. Smith, Pellatt	Green Mountain..	13	14	18	10	22	77
Fred. Day, Kenora	do	13	6	19½	10	28	76½

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
		(15)	(17)	(20)	(10)	(38)	(100)
KENORA.—Continued.							
KENORA AGR. SOCIETY.—<i>Con.</i>							
C. Outen, Kenora	W. Mammoth.....	9	16½	19	10	20	74½
E. Fosberg, Keewatin	Green Mountain..	10½	16	14	10	22½	73
H. Sherwood, Kenora .....	.....	11	16½	16	10	19	72½
Theo. Cedarwell, Pellatt .....	.....	10½	14	14	10	23½	72
Joe Oganoski, Kenora	Green Mountain..	11½	11	18	10	21	71½
L. O. Monk, Keewatin	do	11	14½	19	6	20½	71
A. Bungland, do	do	12½	12	18½	5	20½	68½
W. Greenwood, Kenora .....	.....	11½	14	19	4	18½	67
Wm. McCruith, do	Green Mountain or Delaware....	9½	5	19½	6	18	58
MIDDLESEX.							
CARADOC AGR. SOCIETY.							
<i>Judge—L. D. Hankinson, Aylmer.</i>							
Dug. Campbellford, Mt. Brydges	Dooley.....	14	16	19	9½	30	88½
M. S. Leitch, Strathroy	do	14	16	19	9	29	87
A. Lamont & Sons, Mt. Brydges,	.....	.....	.....	.....	.....	.....	.....
R.R. 2	do	13½	15	18	9½	28½	84½
Jas. Bateman, Mt. Brydges	do	12½	16	18½	9½	27	83½
Clarence Trott, do	do	13	16	18	8½	27½	83
J. R. Veale, do	do	13½	15	18½	8	27½	82½
Edw. Trott, do	do	13	16	16	9½	27½	82
Frank Farrow, do	do	12½	15½	18	9	26	81
J. S. Walker, do R.R. 2	do	12½	15½	17	9	26½	80½
A. Graham, Strathroy	do	11½	15	16	9	29	80½
D. Crawford & Son, do	do	12½	15	17½	10	24	79
Russell Thomas, Mt. Brydges ..	do	11½	15	17	9	24½	77
Wm. S. Courtis, do R.R. 2	do	12	15	18	8½	23	76½
STRATHROY AGR. SOCIETY.							
<i>Judge—L. D. Hankinson, Aylmer.</i>							
J. Ogg & Sons, Strathroy, R.R.2	Dooley.....	14	16	19	9½	33½	92
D. A. McNeil, do R.R.1	do	13½	16	18	9½	32	89
Dougal Leitch, do	do	13½	16	16	9½	31	88
Wm. Gripton, do	do	13½	16	15	8½	32½	85½
Duncan Limon, do	do	12½	16	17	9	30	84½
Augus Limon, do R.R.2	do	12½	16	18	9½	28	84
W. B. Ferguson, do	do	13½	16	18	9	27	83½
Jas. Sabine, do	do	12	16	18	9	26	81
Wm. Oaks, do	do	12	16	17½	9½	24½	79½
Hugh Turner, do	do	12	16	16	8	23½	75½
T. A. Robinson, do	do	11½	16	17	8½	21	74
Duncan McNeil, do	do	12	16	16	8	19½	71½

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	† Apparent yield.	Totals of scores.
MUSKOKA.		(15)	(17)	(20)	(10)	(38)	(100)
MEDORA AND WOOD AGR. SOCIETY.							
<i>Judge—Alex. Morrison, Creemore.</i>							
Alex. Innis, Port Carling	Queen of Hebron.	13	16	18	10	31	88
W. T. Noble, Rossclair	Empire State.....	13	16	17	10	30	86
F. W. Knight, Brackenrig	Up-to-Date.....	13	15½	19	9	29	85½
R. D. Riley, Milford Bay	Empire State.....	12	16	18	10	29	85
W. P. Green, Bardsville	Gold Coin.....	13	16	18	10	27½	84½
Hugh J. Foulkes, Brackenrig ..	Rochester Rose...	12	16	17	10	29	84
Daniel Brown, Port Carling ..	Early Alma.....	12	15	18	10	28	83
W. C. Fraser, Brackenrig	Up-to-Date.....	13	16	17½	7	29	82½
Wm. R. Mason, Bardsville	Amer. Wonder....	12½	16	18	10	25½	82
Wm. A. Pooler, Point Kaye ...	Queen of Hebron.	10	15	16	10	30	81
C. H. Davidson, Brackenrig ..	Gold Coin.....	11	15	16	8	29	79
Geo. Carr, Sr., Port Carling ..	Comet.....	11	14	14	10	29	78
Thos. Aikens, do	Rochester Rose...	11	15	16	6	29	77
Harry Riley, Milford Bay	Rapid Transit....	11	15	15	9	26	76
T. W. Knight, Brackenrig	Vermont Gold Coin	11	16	16	10	22	75
H. Penny, Port Carling	Rapid Transit....	10	15	15	8	25	75
Chas. Donald, do	Irish Cobbler....	10	15	16	6	24	71
Jas. McCulley, do	Delaware.....	10	14	14	8	24	70
N. MUSKOKA AGR. SOCIETY.							
<i>Judge—S. G. Gourlay, Kinburn.</i>							
W. M. Sinclair, Huntsville ..	Delaware.....	14	17	20	10	31	92
Bert Sims, Martin Siding .....	.....	15	16	19	10	31	91
S. J. Ware, Huntsville	Early Burpee.....	15	16	19	10	28	88
Allan Brown, do	Empire State.....	15	17	18	9	28½	87½
Albert Cochrane, do	Delaware.....	13½	16½	19	8½	29	86½
Geo. McKenny, Melissa	Early Burpee.....	14½	17	18	8½	28	86
Sam Bloss, Martin Siding	Davies' Warrior..	13	16½	19	8½	28½	85½
Stanley Martin, Ravenscliffe ..	Early Burpee.....	14½	16½	18½	7	28	84½
Daniel Bray, Martin Siding ..	Late Puritan.....	13	16	19	10	26½	84½
H. L. Young, Emberson	Early Surprise...	13	15	18	10	27½	83½
W. H. Bray, Huntsville	Green Mountain..	13	17	17	10	25½	82½
G. S. Young, do	Empire State.....	15	17	18	10	22	82
Wm. Scott, do	Green Mountain..	12	16	16	10	26	80
Lester Markel, do .....	.....	13	17	17	7½	25	79½
Jno. Pleace, do .....	.....	13	16	17	8	25	79
Milan Markel, do	Rural New Yorker	12½	17	18	7	24	78½
G. Hollingshead, do	Six Weeks.....	12½	17	17	6	25½	78
Jos. Bradley, do	Puritan.....	11½	15	15½	9	26	77
Wm. Knott, do .....	.....	12½	16	16	8½	23½	76½
A. Goodwin, do	Early Eureka....	14	17	17	7	21	76
C. A. Browne, do	Gold Coin.....	10	15	15	7	23	70
Roland Hill, Hillside .....	.....	13	16	18	7	22	69
C. Robinson, Ravenscliffe	Morning Star....	11½	16	15	6	19½	68

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	† Apparent yield.	Totals of scores.
MUSKOKA.— <i>Continued.</i>		(15)	(17)	(20)	(10)	(38)	(100)
S. MUSKOKA AGR. SOCIETY.							
<i>Judge—A. Forster, Markham.</i>							
Daniel Nicholls, Bracebridge .	Amer. Wonder...	15	17	20	10	33½	95½
Wm. Naismith, Falkenburg ...	Delaware.....	15	16	20	10	33½	94½
J. B. Kaye, Bracebridge	Rose of the North.	13½	17	19	10	31	91
Rudolph Goltz, Bardsville	Mixed.....	14	16½	18½	9½	32	90½
Edw. Nicholls, Bracebridge ..	Early Rose.....	14	17	19	9½	30	89½
Alex. Barrow, do	Abundance.....	14½	17	19½	10	28	89
Henry Richards, do	Empire State....	14½	16½	19	10	28½	88½
Wm. Ball, do	Early Eureka....	14½	17	19	9½	28	88
J. J. Beaumont & Sons, do	Davies' Warrior...	15	16½	20	10	26	87½
Percy Kaye, do .....	.....	13	17	20	9½	27½	87
Henry Blanchard, Falkenburg..	Beauty of Hebron.	12½	16	18	10	30	86½
Herman Goltz, Bardsville	Davies' Warrior..	13	16½	18	9	29½	86
Geo. Yearley, Falkenburg	Beauty of Hebron.	13½	16½	19	9	27	85
Geo. Armstrong, Bracebridge ..	Ex. Early Eureka.	12½	16½	18½	9½	26½	83½
Thos. Bruce, do	Mortgage Lifter..	13½	16	19	9½	25	83
Wm. Barrons, do	Early Rose & Delaware.....	13½	16	18½	8	26½	82½
Wm. Taylor, do	Hebron & Rose....	13½	16½	19	8	25	82
H. B. Buckerfield, do	Beauty of Hebron & Delaware.....	12½	15	18	10	22½	78
Robt. Leishman, do	White Star.....	13	16	16	8	22½	75½
STEPHENSON AND WATT AGR. SOCIETY.							
<i>Judge—S. G. Gourlay, Kinburn.</i>							
Hugh Patterson, Utterson	Delaware.....	15	17	20	10	30	92
Jno. Elliott, Port Sydney	World's Wonder..	15	17	20	10	28	90
J. W. Simpson, Parkersville ..	Gold Coin.....	15	17	20	10	27	89
A. J. Hughes, Port Sydney	Gold Nuggett....	14½	16½	17	9½	29½	86
Alfred Kay, do	Uncle Sam.....	13	17	17	10	28	85
Jos. Weir, Utterson	Empire State....	13	16	20	8½	27	84½
Wm. Brown, do	do	13½	16	15	10	27½	82
Jno. Webber, Raymond	Bruce.....	14½	16	17	8	26	81½
Thos. Graham, do	Delaware.....	15½	17	16½	7	25	81
J. M. Patterson, Utterson	do	13	16	18	6	27½	80½
Robt. Wilson, do	do	13	17	15½	10	24	79½
W. J. Hamilton, Raymond	Admiral D.....	12½	17	18	8	23	78½
W. J. Brown, Port Sydney	Late Rose.....	11½	15½	17	9	23	76
Clem. Bunn, Ullswater	Canadian Beauty.	11½	16	19	10	18½	75½
Geo. Wingfield, Utterson	Empire State....	10	15	16	10	24	75
Albert Ball, do	Late Fortune....	12	16	15	7	23½	73½
Jno. Lloyd, do	Elephant.....	12	16	15	7	23	73
R. D. Brown, Port Sydney	Late Rose.....	10½	16	17	9	18	70½
Geo. Hammell, Raymond	Rochester Rose...	10	16	14	.....	24½	64½

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.* POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
MUSKOKA.— <i>Continued.</i>		(15)	(17)	(20)	(10)	(38)	(100)
GRAVENHURST AND MUSKOKA AGR. SOCIETY.							
<i>Judge—A. Forster, Markham.</i>							
Robt. Young, Gravenhurst	Empire State.....	15	17	20	10	33	95
A. Hammond, do	Irish Cobbler.....	14½	16½	20	10	33½	94½
B. Laycock, do	Sunlight.....	14½	17	19½	9	34	94
C. Laycock, do	E. Harvest & Empire State...	15	17	20	10	31½	93½
Geo. Jones, do	Empire State.....	15	17	20	9½	31½	93
Geo. York, do	do	14½	17	20	10	31	92½
W. H. Tincombe, do	do	15	17	20	10	30	92
G. W. Miller, do	Can. Standard....	15	17	19½	10	30	91½
Josh. Short, do	Empire State.....	15	17	19½	10	30	91½
S. Polmateer, do	do	15	17	20	10	29	91
Jon. Groh, W. do	Can. Standard....	15	16	20	10	29	90
Robt. McKay, do	Empire State.....	14½	16	19½	9	30	89
Wallace Ruttan, do	E. Eureka.....	13½	16	18	8½	29½	85½
George Parker, do	Can. Standard....	13½	17	19½	10	24	84
NIPISSING.							
VERNER AGR. SOCIETY.							
<i>Judge—W. S. Scarf, Durham.</i>							
David Lacasse, Verner	Green Mountain..	13	16	18	10	30	87
Geo. Demers, do	do	13	15½	13	9	30½	81
Jas. B. Leitch, do	Carman No. 2....	10	16	15	9	30	80
T. Filiatrault, do	Green Mountain..	11	15	13	9	28	76
J. Remillard, do	do	10	13	12	9	27	71
Jos. Aubin, do	do	9½	13	11	10	27	70½
Alfred Sylvester, do	do	11	14	5	9	30	69
A. Gagnon, do	do	9	12	5	9	26	61
Albert Gagnon, do	do	9	11	5	9	26	60
NORFOLK.							
NORFOLK AGR. SOCIETY.							
<i>Judge—Jas. Boyd, Pickering, R.R. 2.</i>							
W. C. Everett, Simcoe	Delaware.....	13	15	18	8	30	84
F. L. Culver, Waterford	do	11	14	18	9	27	79
A. H. Smith, Simcoe	do	13	12	15	9	29	78
Edw. Murphy, Silver Hill	Munroe Seedling..	11	16	18	7	25	77
Bruce Leonard, Waterford, R.R. 2	Delaware.....	11	15	17	8	23	74
Elmo Riddle, Wilsonville	Carman.....	11	14	17	7	24	73
W. F. Main, Waterford, R.R. 2	Delaware.....	9	14	16	10	23	72
Eric McMurton, do	do	8	15	9	9	19	60

NOTE.—The figures in parenthesis at the top are maximum possible scores.

8 A.S.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	† Apparent yield.	Totals of scores.
PARRY SOUND.		(15)	(17)	(20)	(10)	(38)	(100)
ARMOUR, RYERSON AND BURK'S FALLS AGR. SOCIETY.							
<i>Judge—Geo. W. Glover, Nottawa.</i>							
Sam'l Langford, Midlothian ..	Early King.....	15	17	20	10	27½	99½
A. E. White, Katrine Station..	Early Ohio.....	13½	17	20	10	36	96½
Robt. Andrews, Burk's Falls ..	Early Savoy.....	15	14½	19½	9½	37½	96
Jos. Bell, do	Beauty of Hebron..	12½	17	20	9½	34	93½
Jas. Bell, do	Rose of the North..	11½	16½	20	10	32½	90½
J. T. Smith, Sterling Falls	Carman No. 1.....	10	17	20	10	31½	88½
Wm. Chalmers, Burk's Falls ..	Gold Coin.....	10	17	20	10	31	88
Fred. Metcalfe, do	do	9½	17	20	10	30	86½
Jas. Thompson, do	Early Sunshine...	11	17	17½	9	31½	86
Chas. Inch, do	Maiden's Blush...	12½	17	19½	.....	34½	83½
D. Simpson, Midlothian	Carman No. 1.....	9	16	20	9½	28	82½
L. H. Lincoln, Burk's Falls	Empire State.....	7½	16	20	10	28½	82
Alex. Kennedy, Sterling Falls ..	Green Mountain..	7½	17	20	10	27	81½
J. H. Doherty, Midlothian	Mixed.....	9	17	20	5	29	80
Robt. Moir, Burk's Falls	Gold Coin.....	6	17	20	9½	25	77½
Dr. A. W. Partridge, do ....	.....	5	16½	19½	9½	23½	74
CHRISTIE AGR. SOCIETY.							
<i>Judge—J. D. McKenna, Loretta.</i>							
Wm. Hannon, Orrville	Can. Beauty.....	13	16	18	9	26	82
Jos. Hannon, do	Beauty of Hebron..	13	16	18	9	25	81
J. A. Morrison, Maple Lake Sta.	Green Mountain..	13	15	18	7	26	79
Chas. A. Kloss, do	do	13	16	16	10	21	76
Jas. White, Orrville	Farmer.....	13	15	19	10	18	75
F. E. Forbes, do	Parry Sounders..	13	15	18	8	20	74
Wells Thompson, do	Hebron.....	13	16	18	6	20	73
David Sword, Maple Lake Sta.	Noxall.....	10	15	14	9	24	72
G. C. Flumerfelt, Orrville	Green Mountain..	11	15	15	5	20	66
Chas. Haddon, do	Beauty of Hebron	11	15	15	7	16	64
MACHAR AGR. SOCIETY.							
<i>Judge—W. J. Hamilton, Raymond.</i>							
Jos. McGirr, South River	Green Mountain..	13	16	18	10	36	93
And. McKee, do R.R. 1	do	13	16	19	10	32	90
J. S. Cole, do	Irish Cobbler.....	12	17	17	10	33	89
Thos. Bottomley, do	Hustler.....	13	15	18	10	31½	87½
Jas. Hawthorne, Midford	Northern Spy.....	12	16	17	10	32	87
Thos. Quirt, do	Prize Taker.....	11	15	16	8	24	84
Jno. Hanson, South River	Ensign.....	9	15	15	10	30	79
Mrs. S. Scarlett, do	do	11	13	17	10	27	78
W. J. Unger, do	Irish Cobbler.....	11	15	16	10	25	77
Alex. Bow, do	Jumbo.....	7	15	10	10	33	75
Robt. Carter, do	Irish Cobbler.....	8	15	10	10	30	73
F. J. Hearn, do	Beauty of Hebron..	9	14	10	10	28	71

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	† Apparent yield.	Totals of scores.
PARRY SOUND.— <i>Continued.</i>		(15)	(17)	(20)	(10)	(38)	(100)
MAGNETAWAN AGR. SOCIETY.							
<i>Judge—And. Elliot, Galt.</i>							
Jas. Stewart, Magnetawan	Empire State.....	14½	16	19	9½	34	92½
Julius Wurm, Port Carman ...	Beauty of Hebron.	13	16	19	8½	35½	92
T. W. Whalley, Magnetawan ..	Gold Coin.....	13½	16½	18	9	34½	91½
Thos. King, do ..	Empire State.....	13½	16	18	9	34	90½
R. Elliott, do ..	Early White.....	13½	16	18½	9½	30½	88
Geo. McKnight, Cedar Croft ..	.....	12	16	18½	9	32	87½
Wm. Keppy, Magnetawan	Beauty of Hebron.	12	16	17	9	30	84
Mrs. R. Veitch, Spence	do ...	13	15	17½	8	30	83½
McKELLAR AGR. SOCIETY.							
<i>Judge—W. J. Hamilton, Raymond.</i>							
A. J. Moffatt, McKellar	Davies' Warrior..	14	16	20	10	37	97
Wm. Watkins, do	Early Northern...	13	17	18	10	36	94
Rose Brownley, do	do ...	11	15	15	10	37	88
Henry Moffatt, do	National.....	13	15	18	10	31	87
Robt. Moore, do	Early Rose.....	12	15	16	10	33	86
W. H. Moore, do	Early Dexter.....	12	15	18	10	30	85
Thos. Moffatt, do	Davies' Warrior..	13	15	15	4½	34	81½
Wm. Moffatt, do	do ...	13	15	15	4	34	81
R. H. Moffatt, do	National.....	13	16	16	7	25	77
Geo. Quinn, do	do	11	16	13	8	28	76
C. J. McKeown, do	Early Rose.....	11	15	18	2	29	75
Wilson Quinn, do	Early Dexter.....	11	14	13	10	27	75
W. E. Taylor, do	Amer. Wonder....	11	14	12	4	33	74
Jno. McKeown, do	W. Giant.....	8	15	10	5	30	68
A. Moore, do	Early Rose.....	9	14	12	2	31	68
McMURRICH AGR. SOCIETY.							
<i>Judge—Jas. McLean, Richmond Hill.</i>							
P. J. Farrell, Sprucedale ..	Beauty of Hebron.	14	16½	19	10	37½	97
Marshall & Arnott, do ..	Wonderful.....	14	16½	17½	10	35½	93½
Jas. Downs, do ..	Rochester Rose...	14½	16½	19½	10	30½	91
W. J. Fowler, do ..	Empire State.....	14	16½	19½	10	30	90
Ed. Pearce, do ..	Delaware.....	14	16½	18½	10	30½	89½
Jas. D. Stewart, McMurrich ...	Beauty of Hebron.	14	16	19½	10	29½	89
Fletcher Walker, Royston	Empire State.....	13½	16½	19	10	29½	88½
Geo. Downes, Sprucedale	Rochester Rose...	12	16	19½	10	28	85½
H. D. Farrell, do ..	Beauty of Hebron.	13	16½	15½	10	28½	83½
Dr. Richardson, do ..	Cottell's Beauty..	14	16	19	6½	27	82½
S. R. Blair, do ..	Taft.....	13½	16	19	9½	24	82

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.* POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	† Apparent yield.	Totals of scores.
PARRY SOUND.— <i>Continued.</i>		(15)	(17)	(20)	(10)	(38)	(100)
PERRY AGR. SOCIETY.							
<i>Judge—Jas. McLean, Richmond Hill.</i>							
Wm. Jenkins, Emsdale	Can. Standard....	14	16½	19½	10	27	87
Henry Tebby, Fern Glen	Cottell's Beauty...	12½	16½	18½	10	29	86½
Edwin Hughes, Emsdale	Amer. Wonder....	13	16	18	10	28½	85½
Chas. T. Hayward, do	Cottell's Beauty...	12½	16½	17½	10	28½	85
Wm. John Murdy, do	Empire State....	12½	15½	17½	9½	28	83
J. A. McDonald, do	Can. Standard....	13	16	18	9½	25½	82
Mrs. Edw. Tonner, do	Amer. Wonder....	13	16	18	10	23	80
W. G. Leigh, Scotia	Can. Standard....	12½	15	17	9	26	79½
Geo. Gilpin, Emsdale	Beauty of Hebron.	13	16	18½	10	20	77½
H. R. Hayward, Scotia	Amer. Wonder....	12	15½	16½	9	24	77
T. E. Rowley, Emsdale	Cobblers.....	11	16	17	7	22½	73½
R. J. Gibson, do	Early Transit....	12	16	15	6	23½	72½
A. E. Rowley, do	Cobbler.....	10½	15½	16	9½	19½	71
A. D. Burton, do	do	11	16	14	7	20½	68½
POWASSAN AGR. SOCIETY.							
<i>Judge—W. J. Hamilton, Raymond.</i>							
Jas. Oldfield, Powassan	Carman No. 2....	13	15	15½	10	38	91½
Owen Gough, do R.R. 3	Rochester Rose...	13	15	18	10	35	91
Jas. Alston, do	Empire State....	12	14	19	10	35	90
E. J. Purdon, do	do	13	16	17	10	33	89
P. R. Owens, do R.R. 4	do	13	16	17	10	31	87
Jno. Henderson, do	Mann.....	13	16	19	10	27	85
Jno. Hogan, do	Gold Coin.....	13	15	16	10	26	80
Harry Smith, do	Mann.....	12	14	16	3	32	77
W. G. Oldfield, do	Empire State....	10	16	11	10	26	73
A. R. Gougeon, do	Delaware.....	12	15	10	10	24	71
Wm. H. Alston, do	North Star.....	8	13	10	5	28	64
ROSSEAU AGR. SOCIETY.							
<i>Judge—Alex. Morrison, Creemore</i>							
H. J. Sirett, Rosseau	Pride of Aristook.	13	15	18	10	36	92
A. Crawford, Sr., do	Early Middlesex..	13	16	18	10	34	91
H. J. Stoneman, Turtle Lake ..	Noxall.....	13	15	17	10	35	90
S. A. Foote, Rosseau	Davies' Warrior..	13	16	18	7	35	89
W. T. Wright, do	Beauty of Hebron.	13	15	20	9	30	87
A. T. Sirett, do	Pride of Aristook.	12	15	18	10	31	86
S. Kettle, Jr., Parry Sound	Mortgage Lifter..	13	16	17	9	29	84
J. E. Meisenheimer, Rosseau ....	.....	11	15	16	8	33	83
Jno. Crawford, do	Delaware.....	12	15	16	10	29	82
R. B. Mahon, do	Rose of the North.	13	15	17	10	26	81
Samuel Beimes, Hekkla	Early Rose.....	13	15	18	6	28	80
Gustav Grenke, do	Green Mountain..	11	14	15	9	30	79

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	† Apparent yield.	Totals of scores.
PARRY SOUND.— <i>Continued.</i>		(15)	(17)	(20)	(10)	(38)	(100)
ROSSEAU AGR. SOCIETY.— <i>Con.</i>							
Ewen Ross, Turtle Lake	Early Rose.....	10½	15	16	7	29½	78
Samuel Stoneman, do	Noxall.....	11	15	17	7	26	76
Thos. Beer, do	Mortgage Lifter..	11	15	15	9	24	74
Wm. Fry, Rosseau	Gen. Washington.	10	14	12	10	27	73
Wm. McCauley, do	Noxall.....	10	14	14	9	24	71
W. J. Atkinson, do	Delaware.....	11	14	15	7	22	69
STRONG AGR. SOCIETY.							
Judge—G. W. Glover, Nottawa.							
Jas. Prior, Sundridge	Green Mountain..	15	17	20	10	37½	99½
Peter Lamb, do	Beauty of Hebron.	15	17	20	10	37	99
Jno. Wilson, do	Green Mountain..	14	17	20	10	36½	97½
Jas. Wilson, do	Beauty of Hebron.	12½	17	20	9½	35	94
Thos. Hornibrook, do	Green Mountain..	12½	17	19½	10	34½	93½
Frank Hornibrook, do	do	12½	16½	19½	10	34½	93
F. W. Hannaford, do	do	12½	17	19½	9½	34	92½
Donald Hodgson, Pearceley	do	11	17	20	10	33½	91½
Alex. McMurphy, Sundridge	do	10½	17	19½	10	32	89
Thos. Hodgson, Pearceley	do	10	17	19½	9	30	85½
Jno. Paget, Sundridge	Green Mountain & Empire State.	10	17	19	4	30	80
Thos. Willoughby, do	Green Mountain..	7½	17	19½	10	26	80
Jno. Willoughby, do	Hustler.....	7½	17	19½	10	26	80
J. P. Johnson, Jr., do	Beauty of Hebron.	7½	17	19½	9½	25	78½
Louis Love, do	Hustler.....	4½	17	19½	9½	23	73½
UNITED TP. AGR. SOCIETY.							
Judge—And. Elliot, Galt.							
Jos. Whittell, Dunchurch	Beauty of Hebron.	14	16	19	9	37½	95½
Jas. W. LaBrash, Maple Island ..	Cobbler.....	13½	16	19	9½	36½	94½
Jno. Botterill, do	Beauty of Hebron.	14	16½	17	9	36	92½
J. Walter Crisp, Dunchurch	do	14	16	18	8	35½	91½
Geo. H. Simpson, do	do	13½	16½	19	9½	29	87½
Royal Willard, Jr., do	do	12	16	19½	8	32	87½
Robt. Moore, Sr., do	do	13½	16	18	8	31½	87
Wm. Todd, Maple Island	Early Yelder....	13	16	18½	9	29	85½
W. T. Lundy, Dunchurch	Beauty of Hebron.	12½	15½	16	8	32½	84½
Robt. Farley, do	do	12½	16	18	8	29½	84
RAINY RIVER.							
ATWOOD AGR. SOCIETY.							
Judge—T. G. Raynor, Ottawa.							
W. T. Sleeman, Sleeman	Russett.....	12	16½	19	10	19½	77
A. R. Reid, Pinewood	Green Mountain or Delaware....	12½	13½	19½	10	20½	76
T. H. Meyers, Sleeman	do	12½	14	19	10	20	75½

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
		(15)	(17)	(20)	(10)	(38)	(100)
RAINY RIVER.—Continued.							
ATWOOD AGR. SOCIETY.—Con.							
T. A. Smart, Pinewood	Green Mountain or Delaware....	11½	15½	19	9	18	73
H. Engebretson, Sleeman	do	11½	14	16	10	21	72½
O. M. Iseberg, do	do	11	13½	19	10	18½	72
L. J. Armstrong, do	Hustler.....	11	13½	19	10	17	71
Jno. Kearney, do	Green Mountain or Delaware....	11	11	19½	10	19	70½
H. C. Park, do	do	12½	10	19½	7	21½	70½
C. Peters, do	Gold Coin.....	10	14½	19	10	17	70½
J. J. Hodges, Rainy River	Ensign.....	11½	14	18	10	16	69½
Hugh Hunter, Sleeman	Green Mountain or Delaware....	11½	16	14	10	18	68½
H. J. Hodges, do	do	9	12	19	10	18½	68½
W. McKenzie, do	Mixed.....	12½	16	19½	2	15½	65½
A. J. Hunter, do	Russett.....	7½	16	17½	10	14	65
Geo. Martin, do	Green Mountain or Delaware....	9	15	18½	3	18½	64
D. Vantassel, Rainy River	Early Ohio.....	8	5	15	10	20½	58½
F. E. Songhurst, Sleeman	Mixed White & Red.....	8	16	19	2	12½	57½
A. E. Smith, Rainy River	Irish Cobbler....	13	1	18	10	13½	55½
RAINY RIVER VALLEY AGR. SOCIETY.							
<i>Judge—T. G. Raynor, Ottawa.</i>							
Ossie Cameron, Emo	Green Mountain or Delaware....	12½	16	19½	10	20	78
Wm. McMillan, do	do	9½	16½	18½	10	20½	77
C. H. McCool, Devlin	do	12	14	16½	10	24	76½
Jno. Locking, Emo	do	11	16½	19	10	19½	76
C. J. Linquist, Aylesworth	Early Comet.....	11½	14½	19½	10	20	75½
Wm. Hayman, Big Fork	Ex. Early Eureka.	10½	14	18½	10	22	75
Alex. Locking, Emo	Green Mountain or Delaware....	11½	13	19	10	21	74½
Chas. Fisher, do	do	12½	10½	19½	10	21½	74
T. A. Boucher, do	do	13	16½	17	10	16	72½
Wm. Jewel, Big Fork	do	11½	14	19	10	17½	72
Wm. Hamilton, do	do	11	12	19	10	19½	71½
Ed. Mose, Emo	Early Alberta....	10½	15	18	10	17½	71
F. W. Tummeay, do	Green Mountain or Delaware....	10	16½	18	10	16	70½
D. J. Allan, do	do	11	14½	15	10	19½	70
Ed. Tompkins, do	do	7½	12	18½	10	20	68
Alex. Henry, Big Fork .....	.....	13½	4	19½	10	20½	67½
SIMCOE.							
BARRIE AGR. SOCIETY.							
<i>Judge—J. W. Patton, Rocklyn</i>							
C. M. Hickling, Barrie, R.R. 2..	Carman No. 3.....	14½	17	18	10	23½	83
W. L. Russell, Midhurst	do	13½	16	20	10	22½	82½

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	† Apparent yield.	‡ Totals of scores.
SIMCOE.— <i>Continued.</i>		(15)	(17)	(20)	(10)	(38)	(100)
BARRIE AGR. SOCIETY.— <i>Con.</i>							
R. A. Sutherland, Stroud	Carman No. 2.....	11 $\frac{3}{4}$	17	20	9 $\frac{3}{4}$	22 $\frac{3}{4}$	81 $\frac{1}{4}$
R. F. Carscadden, Edgar	Carman No. 1.....	10 $\frac{1}{4}$	17	19 $\frac{1}{2}$	10	23	79 $\frac{3}{4}$
J. A. Orok, Midhurst	Carman No. 3.....	11 $\frac{1}{2}$	16	18 $\frac{1}{2}$	10	23 $\frac{1}{2}$	79 $\frac{1}{2}$
Geo. Coutts, do	Carman No. 1.....	11 $\frac{1}{2}$	15	19	10	23 $\frac{3}{4}$	79 $\frac{1}{4}$
F. J. Frankcom, do	do	10 $\frac{1}{2}$	16 $\frac{1}{2}$	19	10	23 $\frac{1}{2}$	79 $\frac{1}{2}$
J. A. Bonney, do	Carman No. 2.....	10	17	19	10	22 $\frac{7}{10}$	78 $\frac{7}{10}$
A. A. Garvin, do	Carman No. 1.....	12	15	19	10	22 $\frac{3}{4}$	78 $\frac{3}{4}$
J. & M. Coutts, do	do	10 $\frac{1}{2}$	16	18	10	23 $\frac{1}{10}$	77 $\frac{9}{10}$
E. Barrett, do	Gold Coin.....	9 $\frac{1}{2}$	16 $\frac{1}{2}$	18	10	21 $\frac{1}{10}$	75 $\frac{1}{10}$
TEMISKAMING.							
CHARLTON AGR. SOCIETY.							
<i>Judge—D. Smith, Smithdale.</i>							
Oswald Attwater, Charlton	W. Elephant.....	13	15	18	10	30	86
Fred. Shadick, do	Beauty of Hebron..	13	15	16	10	26	80
N. M. Fraser, do	Hebron.....	11	14	17	10	27	79
Jos. Kitts, do	Green Mountain..	12	13	17	10	26	78
Jno. McFarlane, do	Early Ohio, Jr....	11	13	14	10	29	77
Fred. Pummell, do	Beauty of Hebron..	11	12	17	8	28	76
Geo. Gillett, Brentha	Green Mountain..	12 $\frac{1}{2}$	14	15	7	27	75 $\frac{1}{2}$
Margaret Kenny, Charlton	Early Ohio.....	11	14	17	10	23	75
H. T. Kenny, do	Beauty of Hebron..	11	12	15	10	24	72
Arch. McGugan, do	do	10	13	12	10	25	70
Jno. McCauley, do	do	12	14	10	7	27	70
Bert Nickerson, do	Dooley.....	11	15	12	8	23	69
A. W. Neil, do	Beauty of Hebron..	11	12	14	8	22	67
Albert Clark, do	do	7	8	15	5	20	55
Roy Raycroft, do	do	7 $\frac{1}{2}$	10	10	6	26	49 $\frac{1}{2}$
COCHRANE AGR. SOCIETY.							
<i>Judge—J. B. Kaye, Bracebridge.</i>							
Jos. St. Moon, Cochrane .....	.....	11	14	17	7	21	70
W. Chalmers, do .....	.....	11	14	16	7	19	67
A. Orjienet, do .....	.....	11	14	15	7	18	65
F. Bradette, do .....	.....	11	13	14	7	19	64
J. Bradette, do .....	.....	10	14	12	8	19	63
J. King, do .....	.....	6	13	12	8	14	53
W. R. Gardner, do .....	.....	6	13	10	8	15	52
R. Nixon, do .....	.....	7	11	10	8	15	51
Neil McPhee, do .....	.....	7	10	10	8	15	50
Alex. Robillard, do .....	.....	7	13	10	6	14	50
M. Champagne, do .....	.....	7	10	11	7	14	49
M. T. McClusky, do .....	.....	6	10	11	5	17	49
O. Charlufut, do .....	.....	7	11	12	4	14	48

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	† Apparent yield.	Totals of scores.
TEMISKAMING.— <i>Con.</i>		(15)	(17)	(20)	(10)	(38)	(100)
ENGLEHART AGR. SOCIETY.							
<i>Judge—D. Smith, Smithdale.</i>							
Geo. Stephenson, Englehart	Gold Coin.....	14	15	18	9	30	86
Amos Heaslip, Heaslip	Snowflake.....	12	15	18	9	31	85
Geo. Harman, do	Sunshine King..	13	15	17	8	31	84
Levi Soper, Englehart	Gold Coin.....	12	15	16	8	29	80
Jno. Allen, Heaslip	Eureka.....	12	15	17	9	26	79
J. H. Hamilton, do	Early Fortune... 11½	11½	15	18	7	27	78½
Ernest Wislau, do	Green Mountain..	11	15	17	9	26	78
Jas. Harman, do	Empire State....	11	14	15	8	29	77
R. H. Emerick, do	Early King.....	9	15	16	10	22	72
F. Kiekna, Brentha	Carman No. 1....	9	14	15	10	23	71
J. H. Pillsworth, Englehart ...	Irish Cobbler....	11	12	15	8	23	69
Ed. Scott, Heaslip	Montana King....	11	12	10	6	29	68
MATHESON AGR. SOCIETY.							
<i>Judge—J. B. Kaye, Bracebridge.</i>							
D. Chalmers, Matheson .....	.....	13	16	19	10	30	88
N. Gibson, do	Snowflake.....	12	15	17	9	34	87
A. Oslin, do	6 Weeks.....	12	16	19	9	30	86
N. E. Johnson, do	Snowflake.....	13	16	18	9	29	85
T. G. McDonald, do .....	.....	11	15	15	4	21	66
Frank Russell, do	Snowflake.....	11	14	12	8	20	65
A. Teebs, do .....	.....	11	12	14	9	18	64
J. A. Monahan, do .....	.....	11	11	13	9	18	63
Fred. Draves, do	Snowflake.....	11	10	13	8	19	61
J. Wood, do .....	.....	12	12	10	8	18	60
W. Monahan, do .....	.....	11	10	12	8	18	59
THUNDER BAY.							
OLIVER AGR. SOCIETY.							
<i>Judge—T. G. Raynor, Ottawa.</i>							
W. Reid, Murillo	W. Elephant.....	13	14	16	10	27½	80½
Harvey Gorton, do	Six Weeks.....	13½	16	19	10	20	78½
Sam. McNally, do	Delaware or Green Mountain	12½	13	17½	10	25	78
Arch. McGillivray, do	Davies' Warrior..	13½	16½	18½	7	21½	77
H. Moffatt, do	Burbank.....	12½	14½	18	10	21½	76½
R. R. Everett, do	Carman No. 1....	13	16½	18	10	18½	76
Alex. Trotter, Baird	Early Michigan..	12	13	19	10	20½	75½
J. Williamson, Murillo	Six Weeks.....	13	13	19	10	20	75
Jas. Stevenson, do	Carman No. 1....	12½	16½	18	6½	21	74½
A. Williamson, do	Six Weeks.....	14	14½	19½	7	19½	74½
H. McNally, do	Uncle Sam.....	13	14	19	10	18½	74½
Geo. Munroe, do	Wee McGregor....	13½	13	18	6	23½	74
Roy Bingham, do	Burbank.....	13	15½	18½	5½	21½	74

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.			Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	† Apparent yield.	Totals of scores.
THUNDER BAY.— <i>Continued.</i>				(15)	(17)	(20)	(10)	(38)	(100)
OLIVER AGR. SOCIETY.— <i>Con.</i>									
R. Martin,	Murillo	.....	Irish Cobbler.....	13½	8	19½	5	28	74
C. R. Hill,	do	.....	Carman No. 1.....	13	12½	16	10	22½	74
Thos. Hughes,	do	.....	Green Mountain..	13½	16	13	10	21	73½
W. J. McNally,	do	.....	Burbank.....	13	15½	19	10	16	73½
Wm. Sim,	do	.....	White Elephant..	13	14	18	5	23	73
Robt. McKenzie,	do	.....	Carman No. 1.....	12	14	18	10	19	73
Jno. McDonald,	do	.....	do	13½	15½	18	10	15½	72½
Fred. Lynn,	do	.....	Burbank.....	13	14½	19	6	19½	72
Alex. Reid,	do	.....	Carman No. 1.....	14	9	18½	10	20	71½
Hugh Rice,	do	.....	Early Michigan...	10	14	18½	10	19	71½
N. McNally,	do	.....	Uncle Sam.....	12½	15	14½	10	19	71
A. Felker,	do	.....	Delaware & Car-						
			man No. 1.....	12½	14	19½	8	17	71
Ross McKenzie,	do	.....	Ex. Early Eureka						
			& Delaware.....	12½	14½	17	8	18½	70½
J. W. Bain,	do	.....	Carman No. 1.....	11	13½	19	10	16½	70
A. Gorton,	do	.....	King Edward.....	12½	13	18½	7	18½	69½
J. H. Veley,	do	.....	Carman No. 1.....	12	14	15	10	18	69
D. E. Caldwell,	do	.....	do	11	13	19	4½	20½	68
Jos. Hughes,	do	.....	do	10	12½	16	10	17½	66
Jno. Nicholett,	do	.....	Six Weeks.....	11½	11	14	10	15	61½
WELLAND.									
FENWICK AGR. SOCIETY.									
<i>Judge—Jas. Boyd,</i>									
<i>Pickering, R.R. B.</i>									
Clemens Bros.,	Fenwick, R.R. 5		Dooley.....	14	16	19	9	35	93
B. A. Paterson,	do	.....	Amer. Wonder....	14	15	18	9	34	88
Hammond Haist,	do R.R. 5		Delaware.....	11½	16	19	10	30	86½
Harvey Wills,	do	.....	do	13	15	19	9	30	86
Lloyd Beckett,	Ridgeville	.....	Becket's Cross....	13	14	18	10	30½	85½
Daniel Haist,	Ridgeville, R.R. 1		Delaware.....	12	15	18	9	31	85
M. Stirtzinger,	Fenwick	.....	Dooley.....	12	15	17	9	29	82
Fred. Haist,	Ridgeville	.....	do	10½	16	18	10	27	81½
Jos. Leppert,	Fenwick	.....	White Flier.....	12	15	17	9	28	81
Geo. Kappler,	do	.....	Pelham Mammoth	13	14	17	10	26	80
J. & M. Haist,	Ridgeville, R.R. 1		White Flier.....	11½	16	18	10	24	79½
A. E. Haist,	Fenwick, R.R. 8		Delaware.....	11	15	19	10	24	79
H. Stirtzinger,	do R.R. 5		Vermont Gold....	13	15	14	8	28	78
Walter Crow,	Ridgeville, R.R. 1		White Wellington.	11	16	18	9	22	76
J. L. Stirtzinger,	Fenwick, R.R. 5		Hustler.....	13	15	16	9	33	75
WELLINGTON.									
ERIN AGR. SOCIETY.									
<i>Judge—J. H. McKee,</i>									
<i>Shelburne, R.R. 4.</i>									
Jas. Malloy,	Erin, R.R. 1.....		Green Mountain..	13½	16	19	8½	28	85
G. D. Fletcher,	do R.R. 1.....		do	13	16½	18	9	28	84½

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
WELLINGTON.— <i>Continued.</i>		(15)	(17)	(20)	(10)	(38)	(100)
ERIN AGR. SOCIETY.— <i>Continued.</i>							
Jno. Smith, Waldemar	Dooley.....	13	15	19	9	27½	83½
Fred. McMillan, Hillsburg	Roxbury.....	12	15½	19	9	26½	82
S. Griffin, Acton, R.R. 2	Hustler.....	12½	15½	16½	9	28	81½
Rich. Overland, Orton	Dooley.....	12	14	18	8½	28½	81
A. McKinnon, Jr., Hillsburg, R. 1	Early Pinkeye....	12	14½	17½	9½	27	80½
R. D. Nodwell, Hillsburg	Irish Cobbler....	11½	14	19	9	26½	80
D. Gray, do R.R. 2	Green Mountain..	11½	14	19	9	26	79½
Albert Brown, Erin	Noxall.....	12	15	19	8	25	79
S. Bingham, Hillsburg	World's Fair....	11	15	18½	8½	25½	78½
Chester Burt, do	Green Mountain..	11	15	19	9	24	78
Coke Bros., Erin, R.R. 2	Delaware.....	11½	15	18	9	24	77½
Mack Leitch, Guelph, R.R. 1	Comet.....	11½	15	19	9	22½	77
Jas. McKittrick, Orton, R.R. 3	Green Mountain..	13	16	19	.....	28	76
J. C. McAlister, Hillsburg	Delaware.....	11	13	16½	9	26	75½
D. Barbour, do R.R. 2	do	10½	15	19	9	21½	75
Wm. Barber, Erin	do	10½	15	19	7	19½	71
R. H. Nodwell, Waldemar, R.R. 3	do	11	12	19	8½	19½	70
J. W. Burt & Sons, Hillsburg ..	Green Mountain..	10½	14	14½	9	18½	66½
WENTWORTH.							
ANCASTER AGR. SOCIETY							
<i>Judge—Thos. Creighton, Mooretown.</i>							
Ed. Lyons, Ancaster	Dooley.....	14	17	19	9½	21½	81½
W. E. Shaver, do R.R. 1	Carman.....	13½	16½	18	9½	22	79½
Bert Brown, do R.R. 1	Derby.....	13	16	19	9	21	78
E. Draper, Jerseyville, R.R. 1	Parker's Pride....	12	16	15½	10	22	75½
N. Shaver, Ancaster	Eureka.....	12	16	17	9½	20½	75
T. G. Brown, do R.R. 1	Dooley.....	11½	16	18	9	20½	74¾
Jno. English, do R.R. 1	do	11½	16	15	9	31½	73
W. H. English, do R.R. 1	Iona, Dooley.....	13	8½	18	9	21½	70
A. Edington, do	Sir. W. Raleigh...	11	16	13	9	19½	68½
WATERDOWN AGR. SOCIETY.							
<i>Judge—Thos. Creighton, Mooretown.</i>							
Geo. Harris, Millgrove	British Queen....	14½	16	18	10	27½	85¾
D. Thompson, Waterdown	Comet.....	12½	15	19	10	26	82½
J. A. Bennett, Campbellville ...	Dooley.....	13½	16	19	10	23¾	82½
Wm. Thompson, Waterdown, R. 1	Carman.....	12½	16	19	9	23½	80
H. J. Bennett, Campbellville, R. 3	Comet.....	12½	16	18	10	23½	79¾
T. F. Allen, Waterdown, R.R. 1	Delaware.....	13½	15½	9	9½	22	79½
W. Attridge, do	Sir W. Raleigh....	13½	15½	18½	10	21¾	79¼

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	† Apparent yield.	Totals of scores.
WENTWORTH.— <i>Continued.</i>		(15)	(17)	(20)	(10)	(38)	(100)
WATERDOWN AGR. SOCIETY.— <i>Con.</i>							
W. Gallin, Waterdown	Carman.....	13	16	19	10	21 $\frac{3}{4}$	79 $\frac{3}{4}$
Ed. Harris, Flamboro Centre ..	Irish Cobbler.....	12 $\frac{1}{2}$	15 $\frac{1}{2}$	18	9 $\frac{1}{2}$	23 $\frac{1}{4}$	78 $\frac{3}{4}$
H. A. Drummond & Son, Mill-grove	Dooley.....	12 $\frac{1}{2}$	16	18	10	22	78 $\frac{1}{2}$
W. A. Drummond, Waterdown, R.R. 1	Noxall.....	14	16	17	8	23	78
F. Baker, Waterdown ..	Dooley.....	13 $\frac{1}{2}$	16	19	9	20 $\frac{1}{2}$	78
G. E. Horning & Son, do ..	Sir W. Raleigh....	13	16	19	9	19 $\frac{1}{2}$	76 $\frac{1}{2}$
Lorenzo Bennett, Carlisle	Dooley.....	12 $\frac{1}{2}$	15 $\frac{1}{2}$	16	9	23	76
R. Langton, Waterdown, R.R. 1	Carman.....	12 $\frac{1}{2}$	15	17	9 $\frac{1}{2}$	20 $\frac{1}{2}$	74 $\frac{1}{2}$
G. Hood, do R.R. 1	Dooley.....	13	15 $\frac{1}{2}$	2	10	22 $\frac{1}{4}$	62 $\frac{3}{4}$
YORK.							
RICHMOND HILL AGR. SOCIETY.							
Judge—D. English, Burketon, R.R. 3.							
Robt. Agar, Unionville, R.R. ..	Dooley.....	12	15	18	10	37	92
Noah Hoiles, Maple	20th Century.....	14 $\frac{1}{2}$	17	15	10	35	91 $\frac{1}{2}$
Albert Jones, do R.R. 2	Carman No. 2.....	11	15	18 $\frac{1}{2}$	10	36	90 $\frac{1}{2}$
Duncan McMillan, do R.R. ...	Wellington.....	13	15	18	10	32	88
J. S. McNair, Elgin Mills	20th Century.....	13	16	15	10	33	87
D. W. Clubine, Richmond Hill, R.R. 1	Hustlers.....	12	14	14	10	33 $\frac{1}{2}$	83 $\frac{1}{2}$
Milton Savage, Elgin Mills	Roxborough.....	11	14	14	10	34	83
G. Vanderburgh, Richmond Hill	Dooley.....	11	15	18	8	28	80
Harold Murphy, Elgin Mills ...	Irish Cobbler.....	9	15	14	10	28	76

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

MANGELS.

Competitors in Order of Merit.	Straightness of rows.	Method of seeding.	Proper thinning and cleaning.	Thoroughness of cultivation.	Freedom from insects and diseases.	Purity and uniformity of roots.	Shape and quality of roots.	Yield of roots per acre.	Totals of scores.
BRUCE.	(5)	(5)	(10)	(10)	(10)	(10)	(15)	(35)	(100)
TEESWATER AGR. SOCIETY.									
<i>Judge—J. A. McDiarmid, Batteau, R.R. 1.</i>									
J. D. Little, Teeswater	4	4	8	8	8	8	13	30	83
T. B. Aitkins, do	4	4	7	8	8	8	13	28	80
Robt. Keith, do	4	3½	7½	8	7½	8½	12	26	77
David McDonald, do	4	4	6	8	8	7	12	26	75
Walter Marshall, do	4	4	7	7½	8	6½	11½	26	74½
Alex. McKague, do R.R. 1	4	4	7	7	8	8	12	23	73
J. S. Armstrong, Formosa, R.R. 1	4	3	7	7	8	8	12	22	71
C. J. Thompson, Teeswater	3½	4	7½	7	7½	7	12	22	70½
Joe McKague, do	4	4	7	6	8	8	11	22	70
W. J. Moffatt, do	4	4	7	8	8	7	10	21	69
DURHAM.									
PORT HOPE AGR. SOCIETY.									
<i>Judge—W. F. B. Switzer, Streetsville.</i>									
G. E. Austin, Port Hope, R.R. 4	4½	4½	8½	8½	9	8	14	31	88
H. F. Peters, Canton	4	3½	8½	8½	9	8½	12½	31	85½
T. P. Westington, Pt. Hope, R.R. 1	4	4	9	9	9	7	13	30	85
W. J. Crowhurst, do	4	4	7	8	9	9	12	30	83
W. J. Berry, do	4½	4	8	8½	9½	9	13	26	82½
G. R. Holdsworth, Cobourg, R.R. 4	4	3½	7	8	9	8	12	30	81½
A. Moon, Port Hope	4	4	7	8½	9	8	13	24	77½
J. W. Walker, do R.R. 1	4½	3	7	8	8	7	12½	27	77
Jas. Austin, do R.R. 4	3½	3½	7	7	9	8½	12	25	75½
B. F. Peters, Canton	4	3	7	7½	8	7	12	26	74½
R. L. Holdsworth, Pt. Hope	4	4	7	8	8	7	12	24	74
E. G. H. Martin, do R.R. 1	3½	3	8	8	7	7	12	25	73½
E. J. Symons, do R.R. 3	4	3	6	7	8	7	12	25	72
Wm. Berry, do R.R. 4	4	4	7	7	9	7½	12	21	71½
Thos. Coyte, do	4	2	6	7	7	5	10	15	56
GREY.									
KEPPEL AGR. SOCIETY.									
<i>Judge—Alex. Morrison, Creemore.</i>									
Thos. Johnston, Kemble	4½	4	9	9	9	10	14	32½	92
J. E. Johnston, do	4½	4	9	9	8½	10	13	33	91
Adam Taylor, do	4½	4	8½	9	8½	10	13	33	90½
Morris Bedell, do	4	4	9	10	9	9	13	32	90
Russell Ward, do R.R. 1	4	4½	8½	9	8	10	13	31	88
Homer Hurlburt, do R.R. 2	4	4	8½	10	9	8	13	30½	87
Jno. Taylor, do	4	4	9	9	8	7	13	32	86
L. B. Danard, do R.R. 1	4	4	8	9	9	9	12	29	84
Douglas Davidson, do R.R. 1	4	3½	8½	9	9	8	12	29	83
Frank Davidson, do R.R. 1	4	4	8	9	8	7	12	28	80
W. T. Taylor, do	3½	4	7	8	7	8½	12	27	77
Jas. Sinclair, do R.R. 1	3½	4	7	7	8	8	12	25	74½

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*
MANGELS.

Competitors in Order of Merit.	Straightness of rows.	Method of seeding.	Proper thinning and cleaning.	Thoroughness of cultivation.	Freedom from insects and diseases.	Purity and uniformity of roots.	Shape and quality of roots.	Yield of roots per acre.	Totals of scores.
HURON.	(5)	(5)	(10)	(10)	(10)	(10)	(15)	(35)	(100)
TURNBERRY AGR. SOCIETY.									
<i>Judge—J. A. McDermid, Batteau.</i>									
Oliver Campbell, Wingham	4	4	8	8½	9	8	13	26	80½
W. J. Currie, do	4	3	7	9	9	6	12	25	75
Hy. Deacon, do R.R. 5	3	4	7	8	9	6	11	26	74
Jno. Armstrong, Belgrave	3	3	6	5	8	8	12	28	73
H. T. Perdue, Wingham, R.R. 5	3½	3½	7½	8	8½	6½	11	23	71½
Sam. Burchill, do R.R. 2	3	4	6	7	8	7	12	24	71
Robt. Currie, do R.R. 5	3	3	7	8½	9	6	11	23	70½
W. J. Adair, do R.R. 1	4	4	6	7	8	7	12	22	70
Abram Procter, Brussels, R.R. 5	4	3	7	6	7	8	12	22	69
YORK.									
SCARBORO AGR. SOCIETY.									
<i>Judge—W. F. B. Switzer, Streetsville.</i>									
Wm. White, Ellesmere	4	4½	8½	8½	8½	8½	13½	30	86½
Jno. Baird, Scarboro Jct.	4	4	8½	8½	8½	8½	12½	31	85½
H. K. Clark, Agincourt	4	4	8	8	8½	9	12	31	84½
H. Brumwell, Highland Creek..	4	4	8	8½	9	8	12½	30	84
J. A. Rennie, Milliken	4	4	8	8	8	9	12	30	83
Samuel Rattle, do	4	4	8½	8	8	6	12	30	80½
Fred. Yeamans, Agincourt	4	4	8	8½	8	8	12	27	79½
A. P. Wheeler, do	4	4	8	7½	8	7	11	28½	78
Jno. Kennedy, do	4	4	8	8	8	8	12½	25	77½
David Gillham, do	4	4	7	8	8	7½	12	26	76½
W. A. Patterson, do	4	4	7	8	8	8	12½	25	76½
W. G. Rennie, do	4	4	6½	8	8	7½	12	26	76

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

TURNIPS.

Competitors in Order of Merit.	Straightness of rows.	Method of seeding.	Proper-thinning and cleaning.	Thoroughness of cultivation.	Freedom from insects and diseases.	Purity and uniformity of roots.	Shape and quality of roots.	Yield of roots per acre.	Totals of scores.
BRANT.	(5)	(5)	(10)	(10)	(10)	(10)	(15)	(35)	(100)
PARIS AGR. SOCIETY.									
<i>Judge—J. A. Cameron, Weston.</i>									
Jno. McGill, Princeton	5	4	9	9	8	9	14	33	91
R. Geddie, Paris	4	5	8	8	9	9	14	33	90
D. O'Riley, do	3	4½	9	9	9	9	14	32	89½
Jos. Martin, do	4½	4½	9	9	9	8	13	32	89
J. R. Moyle, do R.R. 4	4	4	9	9	8	9	13	32	88
W. Parnell, Richwood	4½	4½	9	8½	6½	9	13½	32	87½
A. Caine, Princeton	4	4	8	9	9	9	12	32	87
Jno. Cochrane, Paris	4½	4½	8	7	9	8½	14	31	86½
D. A. Holmes, do R.R. 2	4½	4½	8½	9	8½	7½	12½	31	86
D. Patton, do	4½	4½	9	10	7	7½	13	30	85½
Geo. Bone, do	4	4	8	8	8	8	13	31	84
W. Dawson, do	4	4	8	7	8	9	12	31	83
Jno. Newton, do	4	4	8	8	9	7	12½	30	82½
Fred. Luck, do R.R. 4	3½	4	8	8	7	8	12½	31	82
Wm. Brooks & Son, do	4½	4	9	9	7	8½	11½	28	81½
A. Marsden, do	3½	3½	7	8	9	8	12	30	81
E. Midgeby, do	4	4	8	8	8	7	11½	29	79½
W. Potruff, do R.R. 3	4	4	7	8	7	8	12	29	79
Wm. Webber, do R.R. 2	3	4	8	7	6½	8	12	30	78½
F. O'Neail, do	4½	3½	9	9	7	6	12	27	78
Ed. Wade, do	3½	4	6	7	8	8	12	29	77½
Jos. Peart, do R.R. 3	4	4	8	9	7	8	11	26	77
D. Robertson, do	4	3½	7	8	8	8	11	27	76½
Geo. Parkhill, do	4	4	8	9	7	7	10	27	76
R. J. McCormick, do R.R. 4	4	4	8	7	7	8	12	25	75
Jno. Gillies, do R.R. 2	4	3½	8	8½	7	6½	12	25	74½
H. T. Henderson, do	4	3	7	7	8	7	12	25	73
Chas. Meggs, do	4	3	6	7	8	7	12	25	72
Chas. Buck, do	3	4	7	8	6½	6½	11	25	71
C. Potruff, do	3½	4	6	6	8	8	9½	25	70
GREY.									
PROTON AGR. SOCIETY.									
<i>Judge—Jas. Boyd, Pickering, R.R. 2.</i>									
Geo. Bell, Corbetton, R.R. 3....	5	4	9	8	9	9	14	35	93
Jno. McQuarrie, Dundalk, R.R.2	4	4	9	9	8	8	14	34	90
N. Walton, Melancthon, R.R. 1	4	4	8	9	9	8	14	32	88
W. H. Green, Dundalk, R.R.4	4	3	8	8	9	7	13	34	86
W. H. Russell, do	3½	4	8	8	9	8	13	32	85½
J. McPherson & Sons, do R.R.2	3	4	8	9	8	4	14	34½	84½
J. Montgomery & Son, do R.R.2	4	4	8	8	9	8	13	30	84
W. Middleton & Sons, do	4	4	8	9	9	8	14	27½	83½
P. J. Fernane, do R.R.2	3	4	8	8	9	7	13	31	83
J. H. Nicholls, do R.R.4	4	3	6	7	10	8	13	31½	82½
I. Hanna, do R.R.2	4	3	7	8	8	9	13	30	82

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

TURNIPS.

Competitors in Order of Merit.	Straightness of rows.	Method of seeding.	Proper thinning and cleaning.	Thoroughness of cultivation.	Freedom from insects and diseases.	Purity and uniformity of roots.	Shape and quality of roots.	Yield of roots per acre.	Totals of scores.
	(5)	(5)	(10)	(10)	(10)	(10)	(15)	(35)	(100)
GREY.— <i>Continued.</i>									
PROTON AGR. SOCIETY.— <i>Con.</i>									
Geo. Stock & Son, Proton, R.R. 1	4	4	7	8	8	7	12 $\frac{1}{2}$	31	81 $\frac{1}{2}$
Jno. A. Rath, Dundalk, R.R. 1	4	5	8	7	8	8	12	29	81
Thos. Walton, do R.R. 2	5	4	7	6	8	7	13	30 $\frac{1}{2}$	80 $\frac{1}{2}$
Jno. Grummett, Proton, R.R. 2	4	4	9	9	7	7	12	28	80
J. Coulter, Dundalk, R.R. 1....	3	4	7	6	9	8	13	29 $\frac{1}{2}$	79 $\frac{1}{2}$
Robt. Arnott, Maxwell, R.R. 1..	4	2	7	7	10	7	13	29	79
R. Cronin & Sons, Riverview, R.R. 1	4	4	7	7	6	8	13	29 $\frac{1}{2}$	78 $\frac{1}{2}$
R. J. Cornett, Dundalk	4	3	8	7	8	6	12	30	78
R. N. Fowler & Sons, do R.R.2	4	2	7	8	9	7	11	28	76
A. Hanna & Son, do	4	4	7	6	7	6	11	26	71
THUNDER BAY.									
WHITEFISH VALLEY AGR. SOCIETY.									
<i>Judge—Jno. McKay, Emo.</i>									
H. P. Sisson, Hymers	4	5	9	10	8	8	13	25 $\frac{1}{2}$	82 $\frac{1}{2}$
W. C. Grant, do	4	4	8	9	8	8	13	24	78
A. Sitch, do	4	4	9	9	7 $\frac{1}{2}$	7	12	25	77 $\frac{1}{2}$
Robt. Vance, do	3	4	9	8	9	8	12	24	77
A. Brown, do	3	4	7	7	8	8	11	21	69
G. E. Hymer, do	4	3	8	8	8	8	13	16	68
O. Robillard, Flint	4	4	8	7	8	8	14	13 $\frac{1}{2}$	66 $\frac{1}{2}$
E. Sitch, Hymers	4	3	6	7	8	7	12	15	62
Geo. Lomach, do	2	3	7	7	8	7	12	12	58
B. Sutherland, do	3	4	7	7	7	7	11	10	56
A. Parker, do	2	2	6	7	8	7	10	10	52
E. Lee, Scoble West	3	3	6	7	7	7	11	6 $\frac{1}{2}$	50 $\frac{1}{2}$
WELLINGTON.									
MOUNT FOREST AGR. SOCIETY.									
<i>Judge—Jas. Boyd, Pickering, R.R. 2.</i>									
W. J. Wallace, Mt. Forest	5	4	9	10	7	8	13	35	91
M. Wright, do	3	4	9	8	8	9	13	35	89
Jno. D. Ross, do R.R. 1	4	4	10	9	8	8	13	31 $\frac{1}{2}$	87 $\frac{1}{2}$
T. H. Ellis, do	4	4	8	9	9	8	13	32	87
D. Gillies, do	3	4	8	8	9	6	13	34	85
D. Murphy, do	4	4	7	6	9	8	12	30	80
Brown Bros., do	3	4	7	6	9	6	12	31	78
J. W. Woods, do	3	3	7	7	9	8	12	28	77
Irwin Robb, do R.R.	4	3	7	6	8	6	12	30	76

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CLOVER.

Competitors in Order of Merit.	Apparent yield and quality of crops as indicated by :						Freedom from noxious weeds mentioned in Seed Control Act.	Freedom from other weeds, grasses, etc.	Favorable conditions for harvesting the crop, absence of loose stones, etc.	Totals of scores.	Weeds in competitors' fields.
	Height of crop.	Closeness of plants.	Vigor and healthy appearance of plants.	Evenness of crop over field.	Number of well-filled heads per plant containing plump seed of good color.						
KENORA.	(15)	(15)	(5)	(10)	(15)	(25)	(10)	(5)	(100)		
DRYDEN AGR. SOCIETY.											
<i>Judge—John McKay, Emo.</i>											
E. W. Wice, Dryden	14	13	4	9	12	25	9	2	88		
T. H. Lewis, Oxdrift	13½	13	3	9	13	25	7	4	87½		
E. Dawkins, Dryden	13	14	3	9	12	25	7	4	87		
Wm. H. Devoe, Oxdrift	14	13	3	7½	13	25	7	4	86½		
D. F. McKenzie, Eagle River ..	13	12	3	8	11	25	8	4	84		
J. A. Crerar, Oxdrift	12	12	4	8	12	25	8	2	83		
C. O. Self, Dryden	10	12	4	6	12	22	7	3	76		
J. K. Guthrie, do	11	11	3	7½	9	25	6	3	75½		
A. Skene, Sr., do	11	11	3	5	10	25	7	3	75		
D. Neely, Oxdrift	11	13	2½	7	11	19	7	3	73½		
Jno. Adams, do	13	12	4	7	10	20	4	3	73		
W. D. Neely, do	12	11	4	5	12	20	5	3	72		
A. H. Skene, Jr., Dryden	10	9	4	6	11	20	5	3	68		
Jno. Hutchison, do	10	10	4	6	11	18	5	3	67		
A. R. Hutchison, do	8	12	2	5	11	10	5	2	55		

NOTE.—The figures in parenthesis at the top are maximum possible scores.

GRAIN FROM STANDING FIELD CROP COMPETITIONS.

PRIZE WINNERS AT THE CANADIAN NATIONAL EXHIBITION, 1917.

Prize Won.	Competitor and Address.	Variety.
OATS.		
<i>Sheaf Exhibit.</i>		
<i>Division 1—</i>		
1st.....	H. L. Goltz, Bardsville.....	Imp. Scotch.
2nd.....	Fletcher Walker, Royston.....	Reg. Banner.
3rd.....	L. D. Riley, Milford Bay.....	O. A. C. 72.
4th.....	B. Laycock, Gravenhurst.....	Scotch Hero.
<i>Division 2—</i>		
1st.....	C. H. Ketcheson, Belleville, R.R. 2.....	Victory.
2nd.....	M. Boyd Co., Bobcaygeon.....	Banner.
3rd.....	Garfield Kennedy, Bobcaygeon.....	Sensation.
4th.....	B. S. McLaren, Perth, R.R. 2.....	Reg. Banner.
<i>Division 3—</i>		
1st.....	S. W. Bingham & Son, Hillsburg, R.R. 2.....	Reg. Banner.
2nd.....	P. J. Bea, Ridgeville, R.R. 1.....	O.A.C. 72.
3rd.....	Geo. Erwin, Simcoe, R.R. 4.....	Banner.
4th.....	Est. of late Jno. McDonald, Bradford, R.R. 1.....	.....
SPRING WHEAT.		
<i>Division 2—</i>		
1st.....	Walter Galbraith, Renfrew, R.R. 3.....	Marquis.
2nd.....	Peter Wilson, Cobden, R.R. 3.....	Marquis Reg.
3rd.....	A. Johnston, Cobden, R.R. 4.....	Marquis.
4th.....	Sam. McLaren, Cobden.....	Marquis.
<i>Division 3—</i>		
1st.....	Jno. Young & Son, Hagerman.....	Goose.
FALL WHEAT.		
<i>Division 2—</i>		
1st.....	D. Hetherington, Bobcaygeon.....	Sleep and I'll Pay the Rent.
2nd.....	H. R. Seymour, Bobcaygeon.....	Sleep and I'll Pay the Rent.
3rd.....	Arch. Campbell, Bobcaygeon.....	Dawson's Golden Chaff.
<i>Division 3—</i>		
1st.....	Wm. Johnstone, Galt, R.R. 7.....	Dawson's Golden Chaff.
2nd.....	I. Hillborn, New Dundee, R.R. 1.....	Dawson's Golden Chaff.
BARLEY.		
<i>Division 2—</i>		
1st.....	C. H. Ketcheson, Belleville, R.R. 2.....	O.A.C. 21.
2nd.....	H. J. Gay, Frankford.....	O.A.C. 21.
<i>Division 3—</i>		
1st.....	E. Readhead, Milton, R.R. 2.....	O.A.C. 21.
2nd.....	Jas. McDowell, Hornby.....	O.A.C. 21.

GRAIN FROM STANDING FIELD CROP COMPETITIONS.—*Continued.*PRIZE WINNERS AT THE CANADIAN NATIONAL EXHIBITION, 1917.—*Continued.*

Prize Won.	Competitor and Address.	Variety.
OATS.		
<i>Grain in Sacks.</i>		
<i>Division 1—</i>		
1st.....	H. L. Goltz, Bardsville	Imp. Scotch.
<i>Division 2—</i>		
1st.....	Thos. Sellers, Zephyr	Abundance.
2nd.....	G. W. Keyes, Wolfe Island, R.R. 2	Banner.
3rd.....	P. S. McLaren, Perth, R.R. 2	Reg. Banner.
4th.....	E. O. Abbott, Stirling, R.R. 3	White Wave.
<i>Division 3—</i>		
1st.....	Geo. Erwin, Simcoe, R.R. 4	Banner.
2nd.....	Leslie Kerns, Freeman, R.R. 2	O.A.C.
3rd.....	Robt. Wilson, Jarvis, R.R. 1	Alaska.
4th.....	W. H. Mason, Waterford	O.A.C. 72.
FALL WHEAT.		
<i>Division 2—</i>		
1st.....	D. Hetherington, Bobcaygeon	Sleep and I'll Pay the Rent.
<i>Division 3—</i>		
3rd.....	Wm. Johnstone, Galt, R.R. 7	Dawson's Golden Chaff.
4th.....	Alex. Hall, Ayr, R.R. 3	Dawson's Golden Chaff.
BARLEY.		
<i>Division 3—</i>		
4th.....	Jas. McDowell, Hornby	O.A.C. 21.

PRIZE WINNERS AT THE CENTRAL CANADA EXHIBITION, 1917.

OATS.		
<i>Sheaf Exhibit.</i>		
1st.....	H. L. Goltz, Bardsville	Imp. Scotch.
2nd.....	W. Thompson, Indian River, R.R. 3 ....	.....
3rd.....	D. I. Rose, Frankford	Mammoth Cluster.
4th.....	Fletcher Walker, Royston	Amer. Banner.
SPRING WHEAT.		
1st.....	Peter Wilson, Cobden, R.R. 3	Marquis Reg.
2nd.....	Jas. Brigham, Emo	Marquis.
FALL WHEAT.		
1st.....	Wm. Johnstone, Galt, R.R. 7	Dawson's Golden Chaff.
BARLEY.		
1st.....	D. I. Rose, Frankford	O.A.C. 21.
2nd.....	C. H. Ketcheson, Belleville	O.A.C. 21.

GRAIN FROM STANDING FIELD CROP COMPETITIONS.—*Continued.*PRIZE WINNERS AT THE CENTRAL CANADA EXHIBITION, 1917.—*Continued.*

Prize Won.	Competitor and Address.	Variety.
OATS.	<i>Grain in Sacks.</i>	
1st.....	Thos. Sellers, Zephyr	Abundance.
2nd.....	H. L. Goltz, Bardsville	Imp. Scotch.
3rd.....	C. H. Ketcheson, Belleville, R.R. 2	Victory.
4th.....	D. I. Rose, Frankford	Mammoth Cluster.
SPRING WHEAT.		
1st.....	Walter Galbraith, Renfrew, R.R. 3	Marquis.
FALL WHEAT.		
1st.....	D. Hetherington, Bobcaygeon	Sleep and I'll Pay the Rent.
2nd.....	Wm. Johnstone, Galt, R.R. 7	Dawson's Golden Chaff.
BARLEY.		
1st.....	H. J. Gay, Frankford	O.A.C. 21.
2nd.....	D. I. Rose, Frankford	O.A.C. 21.

PRIZE WINNERS AT THE GUELPH WINTER FAIR, 1917.

OATS.	<i>Grain in Sacks.</i>	
1st.....	Wm. Hutcheon, Rockwood, R.R. 1	O.A.C. 72.
2nd.....	A. Schmidt, Mildmay, R.R. 1	O.A.C. 72.
3rd.....	Jos. A. Dixon, Varney, R.R. 1	Banner.
4th.....	H. L. Goltz, Bardsville	Imp. Scotch.
5th.....	Alex. McKague, Teeswater	O.A.C. 72.
6th.....	J. & F. Laidlaw, Walton, R.R. 3	Imp. Banner.
7th.....	R. H. Marshall, Embro, R.R. 6	O.A.C. 72.
8th.....	F. W. Oke, Alvinston, R.R. 2	O.A.C. 72.
9th.....	W. H. Atkinson, Port Elgin, R.R. 3	O.A.C. 72.
10th.....	Paul L. Gram, Port Colborne, R.R. 1	O.A.C. 72.
FALL WHEAT.		
1st.....	J. A. Cockburn & Sons, Puslinch	Dawson's G. Chaff.
2nd.....	Wm. Johnstone, Galt, R.R. 7	Dawson's G. Chaff.
3rd.....	Thos. Young, Galt, R.R. 4	Dawson's G. Chaff.
BARLEY.		
1st.....	E. M. Readhead, Milton, R.R. 2	O.A.C. 21.
2nd.....	J. H. Wilson, Milton, R.R. 4	O.A.C. 21.
PEAS.		
1st.....	W. J. Walpole, Lion's Head, R.R. 2	Golden Vine.
2nd.....	Wm. Warder, Lion's Head, R.R. 1	Golden Vine.
CORN (FLINT).		
1st.....	R. J. Johnston, Chatham, R.R. 3 .....	.....
2nd.....	A. S. Maynard, Chatham, R.R. 3 .....	.....

GRAIN FROM STANDING FIELD CROP COMPETITIONS.—*Continued.*PRIZE WINNERS AT THE GUELPH WINTER FAIR, 1917.—*Continued.*

Prize Won.	Competitor and Address.	Variety.
CORN (DENT).		
1st.....	B. R. Cohoe, South Woodslee	Wisconsin No. 7.
2nd.....	Peter McKinlay, Tecumseh	Wisconsin No. 7.
3rd.....	Arthur Taylor, Comber	White Cap Yellow Dent.
4th.....	Jno. Wallace, Ruscomb	Wisconsin No. 7.
5th.....	J. D. McPherson, Blenheim, R.R. 1	White Cap Yellow Dent.
MANGELS.		
1st.....	Thos. Johnston, Kemble	Jumbo Sugar Beet.
POTATOES.		
1st.....	Wm. Naismith, Falkenburg	Delaware.
2nd.....	D. A. McNeill, Strathroy, R.R. 1	Dooley.
3rd.....	Robt. Agar, Unionville	Bell's Deposit.
4th.....	H. F. Loney, Warton, R.R. 2	Amer. Wonder.
5th.....	W. M. Sinclair, Huntsville	Delaware.
TURNIPS.		
1st.....	Jos. Martin, Paris	New Century.
2nd.....	Robt. Geddie, Paris, R.R. 3	New Century.
3rd.....	Marshall Wright, Mount Forest .....	.....

STANDING FIELD CROP COMPETITIONS.

INSTRUCTIONS TO JUDGES.

1. SCORING FOR YIELD.

The following are the standards of yields per acre adopted at Guelph and Ottawa for the different field crops to be judged in Ontario:

Crops.	Bushels per acre.	Number of bushels below standard for each point dropped.
Oats	80	10
Barley	60	10
Corn	80	10
Winter Wheat	40	5
Spring Wheat	35	5
Field Peas	30	5
Beans	40	5
Potatoes	500	25
Mangels	1,200	75
Turnips	1,200	75

2. WEEDS IN CEREALS.

N.B.—The number or numbers in the column to the right of the total score of each competitor show the weeds found in his crop, the numbers following being the key to same:

- CLASS 1.—
- | | |
|---------------------------|------------------------|
| 1. Wild Oats. | 6. Hare's Ear Mustard. |
| 2. Perennial Sow Thistle. | 7. Ball Mustard. |
| 3. Purple Cockle. | 8. Penny Cress. |
| 4. Wild Tares. | 9. False Flax. |
| 5. Wild Mustard. | 10. Twitch Grass. |
| 11. Bladder Campion. | |

All weeds in Class 1 are to be scored quite heavily, and Wild Oats and Perennial Sow Thistle the heaviest of all.

If Wild Oats or Perennial Sow Thistle are found going to seed in the crop the following points should be deducted from the total score: One plant, 3 points; two plants, $5\frac{1}{2}$ points; three plants, $7\frac{1}{2}$ points; four plants, 9 points; and one point for each of the next six plants, making 15 points cut if as many as ten plants can be found.

- CLASS 2.—
- | | |
|---------------------|---------------------|
| 12. Field Bindweed. | 15. Canada Thistle. |
| 13. White Cockle. | 16. Chess. |
| 14. Curled Dock. | 17. Hemp Nettle. |

The weeds in Class 2 are to be scored somewhat lighter than those in Class 1.

CLASS 3.—All other weeds scored somewhat less than those of Class 2.

NOTE.—Great care should be taken to name on the Score Cards all the weeds of Class 1 and Class 2 which are found in each field. This is very important.

3. POTATOES, MANGELS, TURNIPS AND SUGAR BEETS.

Method of Determining Yield.

Each judge is to take with him an outfit for making the determination, including scales or steelyards. If necessary, a set should be purchased for about \$1.00, a receipt obtained for the same and the amount included with the travelling expenses.

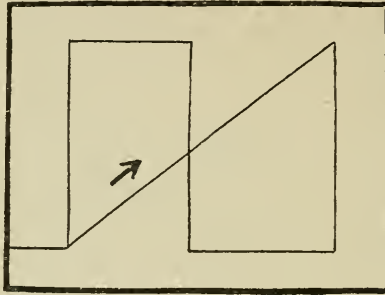
Each judge is to dig and weigh the potatoes in each of two places in every field examined. The following schedule will assist in making each of the determinations:

Inches wide.	Feet long.
26	18
27	$16\frac{1}{2}$
30	15
33	$13\frac{1}{2}$
36	12
39	$11\frac{1}{4}$
42	$10\frac{1}{2}$
45	$9\frac{3}{4}$
48	9

Each lot weighed represents yield of 4 square yards. This divided by 4 is the yield of 1 square yard, which multiplied by 4,840 gives the yield in pounds per acre, and when divided by 60 gives the estimated number of bushels per acre. The two lots worked out in this way, when added and divided by 2, give the estimated yield per acre from which the score can be determined.

4. EVERY JUDGE MUST WALK THROUGH EACH FIELD WHICH HE JUDGES.

The majority of judges favor the following route, supposing the field to be nearly square:



If the field is of a different shape the route should be changed accordingly, so as to ensure the whole field being thoroughly examined.

BLACK OR STEM-RUST OF WHEAT.

CIRCULAR ISSUED BY FEDERAL DEPARTMENT OF AGRICULTURE.

Grain rusts are the cause of heavy, local losses every year; in widespread epidemics, as in 1904 and 1916, the total loss to the country may amount to millions of dollars. Black, or more correctly, stem rust, is the most destructive of all rust diseases in Canada, as it chiefly affects the important wheat crop; but it also attacks oats, barley and rye. Stem rust has two stages on grain, the red and the black; another stage in the life history of this rust occurs on the barberry. For a more detailed account of this disease consult the Bulletin on Black or Stem Rust of Grain, published by this Department (Publications Branch). The losses from rust may be considerably reduced by closely observing the following principal recommendations.

1. **CHOICE OF LAND.**—Avoid wet land, or provide thorough drainage, which increases vigour and yield. Vigorous plants are less liable to attack.
2. **SEED BED.**—The careful preparation of the seed bed is an important consideration; a warm, well-ventilated soil, with even, smooth surface encourages uniform germination, increases the root system, and aids rapid growth to early maturity. Any cultural method that tends to increase vigour and strong growth will lessen losses from rust.
3. **ROTATION.**—Crop rotation increases vigour and yield of all crops. Continuous wheat cropping produces weedy farms, wastes soil fertility and favours disease.
4. **WEEDS.**—Weeds impoverish soil. Impoverished soil is undesirable for any crop. Practice thorough weed eradication, thus aiding the grain crop.
5. **SEED.**—All seed must be treated for smut, but no known method of seed treatment will check rust. Of foremost importance, be the soil or weather conditions what they may, is the use of superior seed grain of strong germination. Shrivelled or light seeds, old seed grain of low germination or frosted grain should not be used.
6. **EARLY SOWING** is highly desirable. Early sown grain often escapes rust injury altogether, and, generally speaking, is far less liable to rust attack.
7. **EARLY VARIETIES.**—The choice of early maturing varieties, otherwise satisfactory as to yield and quality, is, therefore, recommended. Such varieties are generally past the vulnerable stage at the time rust infection of late varieties becomes general. Do not pay fancy prices for so-called "rust proof" varieties. No variety is rust proof.
8. **THE BARBERRY.**—The relation of the barberry to stem rust has long been established. It is most essential that the shrub be exterminated throughout the grain growing areas of the Dominion. It is undoubtedly a contributory factor to rust and, therefore, most undesirable.

TWELFTH ANNUAL REPORT
OF THE
Horticultural Societies
OF ONTARIO
FOR THE YEAR
1917

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO:
Printed by A. T. WILGRESS, Printer to the King's Most Excellent Majesty
1918

Printed by
WILLIAM BRIGGS
Corner Queen and John Streets
TORONTO

To His Honour SIR JOHN STRATHEARN HENDRIE, C.V.O., a Lieutenant-Colonel
in the Militia of Canada, etc., etc., etc.

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I have the honour to present herewith for your consideration the Report of
the Horticultural Societies of Ontario for the year 1917.

Respectfully yours,

W. H. HEARST,

Minister of Agriculture.

TORONTO, 1918.

CONTENTS.

	PAGE
OFFICERS FOR 1918	6
ONTARIO HORTICULTURAL ASSOCIATION:	
ANNUAL MEETING	7
President's Address: DR. F. E. BENNETT	7
How I Grow my Gladioli: WM. HARTRY	10
Report of Superintendent: J. LOCKIE WILSON	16
Vacant Lot Gardening: T. D. DOCKRAY	39
The Influence of School Gardens on Community: J. A. TAYLOR, B.A.	48
Report of Delegates to American Civic Association: REV. G. W. TEBBS	54
Planning of Grounds for City, Suburban and Country Houses: H. B. DUN- INGTON-GRUBB	55
Aster Growing: G. H. RYERSON	58
Tropical Plants: W. T. ROSS	63
Flowers that Best Suit the Grounds of Northern Ontario: MRS. LORNE MC- DOUGALL	67
An Amateur's Garden: REV. G. W. TEBBS	70
Mushroom Culture: WM. ALLAN	73
Treasurer's Report: C. A. HESSON	77
Report and Contributions of the Committee on Names and Varieties	77
Descriptive List of Hardy and Semi-Hardy Primulas: H. J. MOORE	78
Darwin Tulips—Best Twenty-five Varieties: W. T. MACCOUN	81
A List of Hybrid Perpetual Roses: P. H. MITCHELL	82
Parks and Playgrounds: DR. S. SILCOX	91
Parks: H. J. MOORE	95
Report of a Committee on a National Flower for Canada	97
Fruit in the Small Garden: P. H. MITCHELL	103
Home and School Gardening in Detroit: MRS. M. H. GROSVENOR	105
RECEIPTS AND EXPENDITURES	108
MEMBERSHIP AND LEGISLATIVE GRANTS	109
PRESIDENTS AND SECRETARIES	111

ANNUAL REPORT
OF
The Horticultural Societies of Ontario
1917

To the Honourable W. H. Hearst, Premier and Minister of Agriculture:

SIR,—The year 1917 has been the banner one for the Horticultural Societies of Ontario, as is evidenced by the report of the work done by them, together with the proceedings at the twelfth annual convention. This organization has a now paid membership of upwards of 18,000, and, in addition, many new Societies have applied for incorporation. Few associations in Canada have done better work for the encouragement of home and vacant lot gardening than the one the report of which I have the honour to submit for your consideration. Hundreds of thousands of bushels of valuable garden food products have been produced through the efforts of these Societies, whose motto is "Cultivate every foot of ground so that our great alliance for freedom's cause may be maintained."

Faithfully yours,

J. LOCKIE WILSON,

Superintendent.

OFFICERS, 1918

President..... T. D. DOCKRAY, Toronto.
First Vice-President..... PROF. J. W. CROW, O.A.C., Guelph.
Second Vice-President WM. HARTY, Seaforth.
Secretary and Editor.....J. LOCKIE WILSON, Toronto.
Treasurer.....C. A. HESSON, St. Catharines.
Hon. Director.....DR. F. E. BENNETT, St. Thomas.

Directors: District No. 1, REV. A. H. SCOTT, Perth; 2, G. H. BAKER, Lindsay; 3, R. WHORLEY, Haileybury; 4, MISS MARY YATES, Port Credit; 5, J. A. WEBBER, Hamilton; 6, JNO. GRIEVES, Seaforth; 7, H. W. BROWN, Kitchener; 8, DR. J. A. BOTHWELL, Stratford; 9, C. D. BROWN, Walkerville.

Auditors: W. J. EVANS and W. J. GRAHAM, Toronto.

Representatives to American Civic Association: DR. BENNETT, T. D. DOCKRAY, and J. LOCKIE WILSON.

Representative to Civic Improvement League: R. B. WHYTE, Ottawa.

Representative to School Gardens Association of America: C. B. HAMILTON, Toronto.

Representative to Canadian National Exhibition: P. H. MITCHELL, Toronto.

Committee on Names and Varieties: H. J. MOORE, Niagara Falls; F. E. BUCK, C.E.F., Ottawa; P. H. MITCHELL, Toronto; PROF. W. T. MACOUN, C.E.F., Ottawa; WM. HUNT, O.A.C., Guelph; O. J. ROBB, Vineland Sta.; WM. HERRICK, Galt; J. C. CROMBIE, St. Thomas.

TREASURER'S REPORT

FOR THE YEAR ENDING NOVEMBER 21ST, 1917.

Receipts.

Balance on hand as per statement of November 21st, 1916	\$235 33
Affiliation fees account, 1916-17	70 00
Affiliation fees account, year 1917-18	105 00
Affiliation fees, arrears	12 00
Bank interest to November 30th, 1916	2 40
Bank interest to May 31st, 1917	2 27
	\$427 00

Expenditures.

Honorarium, Secretary	\$50 00
Assistants at Convention	8 00
Caretaker of Convention Hall	5 00
Thos. Wibby, 500 "Rose design" buttons	13 00
Mr. J. H. Bennett, delegate's expenses to American Civic Association	25 00
Rev. G. W. Tebbs, delegate's expenses to American Civic Association	25 00
American Civic Association, annual fee	5 00
Legg Bros., letter paper and envelopes, new plate	35 15
Treasurer's account for postage and war stamps	3 40
Book of receipt forms	15
Discount on cheques (affiliation fees)	2 45
	\$172 15
Total expenditure	172 15
Balance on hand	254 85
	\$427 00

C. A. HESSON, *Treasurer.*

St. Catharines, November 21st, 1917.

Audited and found correct, }
 MARY YATES, }
 ADA, L. POTTS, } *Auditors.*

ONTARIO HORTICULTURAL ASSOCIATION

The Twelfth Annual Convention of the Ontario Horticultural Association was held in the Canadian Foresters' Hall, 22 College St., Toronto, on Wednesday and Thursday, November 21st and 22nd, 1917, with President, Dr. F. E. Bennett, in the chair. The number of delegates in attendance was largely in excess of that of previous years and great interest was shown in all the proceedings.

PRESIDENT'S ADDRESS.

DR. F. E. BENNETT, ST. THOMAS.

I assure you I deeply appreciated the honor you conferred upon me a year ago by electing me president of this most important organization. I also extend the glad hand of welcome to any who may be with us for the first time at our annual convention. I desire also to extend greetings to those older members who have for years graced our meetings with their presence, and who have contributed so much to the growth and promotion of this most worthy institution.

We meet to-day under circumstances of sadness and sorrow, for the war with all its misery, its hatred, its bloodshed and its anguish is still being waged in the centres of civilization. Hope and optimism still spring eternal in the human breast. The days are dark, but let us hope brighter days are ahead. Our honor and liberty are being defended on the battlefields of France and the bloodstained plains of Flanders by our gallant and brave sons. Canada has given of her best. Their courage, bravery, fortitude and endurance are the heritage of posterity and the legacy of the race. Many of them sleep within sound of the whistling bullets, the shrieking shrapnel, the bursting shell and the roaring cannon. Ours is the solemn honor in knowing that they died for the eternal verities by which we gain immortality and that human civilization and freedom may survive this cataclysm and be the heritage of posterity.

The beauty of nature in these disastrous days seems a kind of background against the devastation of war. Nature with her bloom and beauty seems to be making a kind of atonement for man's great sin. Though the present summer was an abnormally backward one, I have never seen our country filled with such enchanting beauty. The gold and green of the opening leaves, the magic of the trees, each clothed with such a wealth of green, every garden full of blossom and the gaiety of the wild flowers along the wayside seemed to turn our minds away from the depressing horrors of war to the beauty of nature's God. A young soldier writing from the front said: "War does not seem so terrible in the stark barrenness of winter as when the spring comes and puts on its crown of beauty. It is not hard to die in the winter, but it seems hard to die amid the bloom and blossoms of spring." Man is making the world an inferno with his war, but nature modifies it and partly obliterates it by her beauty, and it is a good thing that no sin of man can stay nature's life and beauty, no sin can stay the orderly procession of the seasons. In spite of war flowers bloom, trees burst into leaf and harvests ripen and are reaped, and it is so because flowers are the agencies used to renew life in the heart of the world and keep life sweet. It is what our boys want when they return from the war to obliterate the memory of their struggles and to renew their lives upon tender and helpful lines. By all means let them come back to a country filled with nature's beauty.

The one organization to which the work of civic beautification is entrusted is that which meets here to-day. Let us then realize the demands which will be made upon us, and live up to our opportunities for good. Our membership has reached approximately eighteen thousand, a figure which some might expect to be sufficient for much good. It must be admitted that this enables us to extend considerable influence and to do a large amount of good in our respective municipalities, yet the influence of horticulture should be made nation-wide. Every municipality should have a live, thoroughly organized horticultural society, and not until then should we consider that we are doing all that we should accomplish. From personal experience I know there are many municipalities only waiting a word of encouragement and assistance in organizing. Does a successful business man sit down and wait for business? No, he goes out in search of it by aggressive advertising. And so should we, with our immense field before us. Let us go forward with greater energy and create an environment in every part of the country which will have the greatest possible refining influence on the children of to-day who will be the men and women of to-morrow.

Apart from the refining and moral influence of horticulture we must remember its physical advantages, and if ever a strong vigorous manhood were needed in the country it is to-day. Let us then do our utmost to help those who need assistance in this work. Men thoroughly conversant in every department of the work should be sent into the field to confer with, advise and organize new societies, and to encourage and enthuse any which may have become dormant. I am not speaking as a novice. I am giving you the results of my personal observations during the past year and prior to that. I have had the pleasure of addressing many societies, of organizing several and re-organizing some which had become almost defunct. In every case those present showed a keen interest, and decided to proceed to greater activities in future.

The little village of Dutton, in Elgin County, with a population of only eight hundred people, organized provisionally some six weeks ago. To-day they have eighty members, and they have planted out fourteen public beds of tulips and other spring flowers around their schools, churches and public places. They have also started many citizens on the road to floriculture who had never previously grown anything in their lawns and yards but grass. This has been accomplished by giving each member a liberal donation of bulbs, roses or shrubs. How can the value of such a start be estimated?

Co-OPERATION.—One method by which one society can help another with practically no expense to either has been tried out in the district in which I live this year. I refer to the interchange of exhibits and speakers at shows and lectures. St. Thomas, London, Tillsonburg, Aylmer and Ingersoll all worked together as far as possible in this way to make the various shows of each a greater success than would have been possible otherwise. The St. Thomas society also made creditable exhibits, for educational purposes only and not for competition, at Toronto Exhibition and at London Fair. These we are told were much appreciated by flower lovers, and the Chairman of the Horticultural Section of the Canadian National Exhibition, Mr. Frankland, who is especially well known to you Toronto horticulturists, was delighted with the results. He asked me to have this convention consider some plan whereby a special department may be considered for such exhibits next year, and, if necessary, a whole wing of the Horticultural Building will be devoted to our purposes.

Other matters which I would be pleased to have this convention consider are



THOMAS D. DOCKRAY,
President, Ontario Horticultural Association, 1917-1918.

increased vegetable production, conservation in many different phases, such as protection of trees and bird life, utilization of fallen leaves and street sweepings, and the encouragement of sheep rearing in parks where at present there is a considerable expense for mowing and similar labor. By giving these matters our attention we can contribute materially to the welfare of our country and our men overseas. Vegetable prices continue to soar notwithstanding the extensive propaganda last spring, and the excellent results which were obtained. Also, in regard to wool, we must remember that the one per cent. of the world's man power who are in arms to-day are using sixty per cent. of the world's wool crop. The ninety-nine per cent. of us must get along on forty per cent. of it. In conclusion I say that we must never fail to remember that there are two subjects before us at all times, namely, the smoke and noise nuisance and unsightly bill boards. I trust that the Convention of 1917 will prove of the greatest value to all concerned.

W. J. EVANS: There are many features in this address that commend themselves to this Convention, among others its brevity. We appreciate an address with all the points included in Dr. Bennett's, so briefly stated. I am the representative of the Toronto Horticultural Society to the Canadian National Exhibition, and that prize list certainly needs revision. It is difficult to know how to revise it to meet all suggestions and requirements. If a small committee or even the directors of this organization would take up the list and revise it, as in their judgment is requisite, I promise that it will be laid before the committee of the exhibition association and I will certainly do my utmost to see that the result of your deliberations are accomplished. A committee of a few qualified men to revise that list could meet and probably submit their deliberations before this Convention. I move the adoption of the President's address.

Seconded by Mr. E. E. KILMER and adopted.

HOW I GROW MY GLADIOLI.

WM. HARTRY, SEAFORTH.

In my opinion there is no flower that will give such great returns for the labor and money expended as the gladiolus. Its great range of color from almost black to almost pure white, its freedom from insect pests, and its great lasting qualities assure this claim. It is as a cut flower that the gladiolus is of the most value.

About October 1st I cut a number of spikes just as the second bloom opened, placed them in a vase of water, changed the water three times a week, cutting a portion of the end of the spike, and at the end of three weeks there were still some good blooms. On one spike—Pink Perfection—four flowers measured $4\frac{1}{2}$ inches each.

In securing bulbs never buy cheap collections. You are sure to get a large percentage of inferior ones. Rather buy a mixture of good sound bulbs, or better still, secure named varieties. You know flower lovers are the most unselfish and generous people one meets. It gives the greatest pleasure to the grower to be able to tell the admirer of a certain variety the name, thus enabling your visitor to obtain what you so much admire yourself.

I will mention some gladioli I have grown, commencing with the earliest to bloom.

Halley. Possibly the best and cheapest yet produced; a splendid salmon pink.
Empress of India. Very rich dark brown, sometimes streaked with lighter color.

Baron Hullet. Grand dark blue, tall spike, medium sized flower.

Niagara. A fine large bloom, light yellow and a strong grower.

Glory of Holland. White, yellow shaded, good size and a sure bloomer.

Lily Lehman. A real dainty white, shaded cream.

Pink Perfection. A really grand flower, large and of a fine satiny finish.

Panama. Another splendid pink, this gladiolus created a great sensation when first introduced in Holland, bulblets selling as high as \$20 per pint.

Wm. Falconer. Fine large blush pink.

Mrs. Frances King. A splendid light red color, a strong grower.

America. A fine light pink, strong stem, very good.

Peace. One of the strongest growers; a good white flower with violet-shaded spot in the throat.

Princeps. A strong grower, very large scarlet flower with white throat.

All the above are splendid stock.

HOW I GROW THEM.—Select an open space away from all beds, trees or borders. Dig a trench the desired length, 7 inches deep and about 12 inches wide. Throw the surface soil on one side; the sub-soil on the other side. Now, having obtained some good, well decomposed manure, put about 2 inches in the trench and 2 inches of surface soil, then with a hoe or a stable fork thoroughly mix the soil and the manure adding a nice sprinkling of commercial fertilizer. Place the bulbs in two rows 6 inches apart and 5 inches in the rows. Cover with about 1½ inches of fine top soil; leave about 20 inches between the trenches. Be sure to cultivate often. A garden wheel-hoe with cultivator teeth is the best. As the bulbs grow level with the soil fill up the now sunken trench until there are from 3-3½ inches of soil on top of the bulbs. Water freely and cultivate after each watering or after rain as soon as the ground will admit of it. Following these directions you are sure to succeed. This may seem a great deal of work but I assure you that it will pay in the increase in the quality and quantity of your bulbs, and in the greater size and beauty of the flowers. In the fall as soon as the frost is about to set in take up the bulbs, leaving about 4 inches of the stalk. Place the bulbs in boxes or baskets and allow them to dry for about two months. Then the old corm or bulb will easily come off. Keep dry and free from frost, for if allowed to get damp they may sprout and be injured.

JAS. OGILVIE: The first few paragraphs of my discussion of Mr. Hartry's address are taken from a paper given by Mr. Groff to a Gladiolus Society in the United States.

There is something in color and combination of color that to the sensitive and attuned perception gives rise to sensations and emotions impossible of description by word or pen. To the artist in any profession having color and color scheme for its aim or objective, the influence of new, advanced and highly refined shades or combinations of a rare character, eliminates all other interests, influences and conditions, and constitutes to the possessor a sufficiency so enthralling as to destroy for a time at least, all sense of appreciation of all sensibility for more material aspects of surrounding influences and even physical needs.

Such individual characteristics are possessed by all flower lovers in degrees. No two are attuned in exact unison, but many are happy possessors of this refined

sensibility as to enable them to receive pleasure, enjoyment and satisfaction in such volume as to make for great personal happiness in intimate association with the beautiful in nature, and also as an incentive to physical activity and effort, as to be productive of benefits impossible of acquirement in any other way. The value of high class and choice types in floriculture is, therefore, an influence to such temperaments, of value and satisfaction beyond estimate, and their relative capacity for such appreciation is the gauge of their measure of enjoyment.



Gladioli.

For the purpose of satisfying the foregoing general and happy conditions of all flower lovers, there is no generally available and diverse product of floriculture equal to the gladiolus. To support this comprehensive claim, let me remind you that there are very few plants that produce the full range of primary colors in their inflorescence. This the gladiolus does. In addition to the colors of red, white, yellow and blue, we have to-day innumerable varieties embracing every shade of these colors to say nothing of endless and marvellous combinations of quality, beauty and value, beyond the conception of the human mind.

To these are being added yearly such increased diversity and attractiveness without possible limitation, as to satisfy every individual taste and every grade of refined and cultivated appreciation.

This in brief recounts some of the many qualities of the "people's flower." Its moderate cost, simple culture, beauty of bloom, healthy foliage, immunity from attacks of insect enemies and comparative freedom from fungus diseases, increase of planting stock, and ease of storage in winter give it a surpassing claim to be considered a popular flower. You can grow them in any good garden soil except very hard clay, in which case a little sand or humus should be mixed with the clay to make it easier to work and prevent it from becoming baked hard in a dry time. They may be planted any time from the end of April until late in June. Gladioli planted by me on the 22nd of June, the day the late Queen's Jubilee was celebrated, all flowered satisfactorily.

The flower spikes should be cut as soon as the first, or at most the second, flower opens, care should be taken to leave as much foliage as possible on the stem left on the bulb, to bring it to proper maturity, and also to produce as many little bulblets as possible. These bulblets should be kept in a safe place away from frost and planted next spring as early as safe to do so, about 2 inches deep, then lift them in the fall and keep for planting the following spring. By this means in three years you will have good flowering bulbs to replace your old ones which deteriorate and go back after being grown and flowered for a number of years. The bulbs thus raised from the bulblets are just as good as the original stock. To obtain the bulblets you desire tie a string around your choice plants when they are in bloom, so that you can separate them from the others at digging time in the fall. Plant in a sunny position, never in the shade, nor where the roots of shade or fruit trees will sap the moisture from the ground.

Gladioli look nice if planted in little groups of half a dozen or more anywhere around the lawn or yard. I plant mine in beds, after spading the ground as deeply as the soil will permit, pulverize it thoroughly, furrow out the rows the whole length of the bed, a foot apart, to the depth of 5 or 6 inches, sprinkle by hand some sure growth fertilizer or sheep manure in the bottom of the furrow, then rake about an inch of soil into the furrow over the fertilizer to protect the corms from coming in direct contact with the fertilizer, which might prove too hot for the tender roots when they start into growth, but by the time they get down through the soil covering the fertilizer it has become dissolved and mixed with the soil and ready to do its work. Plant the bulbs from 4 to 6 inches apart in the rows and cover them by raking the soil taken from the furrows back again with your rake, this pulverizes the soil and leaves it loose, permitting the air to circulate freely through it. The bulbs should be covered to a depth of 4 inches in ordinary garden soil, but if your land is light sand they should be planted a little deeper as a protection against the high winds blowing them over. In such case the stems would become crooked and unfit for use in vases or decorative work. In clay land they need not be planted so deep, as the stiff clay will hold them upright. If heavy rain comes soon after planting and causes a hard crust to form on top of the ground, as it will do with some soils, it is a good plan to rake your bed over carefully before the plants come through the ground. Do not go too deep as you might break the points off the young plants. This raking breaks up the crust and makes it fine, which acts as a mulch and keeps the soil underneath from drying out and becoming hard. The moisture retained by this means in the soil will cause the young plants to come up much quicker and start into vigorous growth.

In large beds if you have plenty of land it is a good plan to leave out every fifth row for a walk, so that you can get around much easier to work among them; keep the surface well hoed and free from weeds between the rows; after the flower stalks are up about 2 inches you can hoe in between the rows a little sheep manure or nitrate of soda just before rain, if possible.

The nitrate of soda can be applied with a watering can, using about a teaspoonful to a gallon of water. Leave the bulbs in the ground as late as possible in the fall as they continue to draw strength from the soil, only lifting them in time to



Chrysanthemums in Conservatory of A. B. Ormsby, Mimico.

escape being frozen. As soon as you lift them cut the tops off about two inches above the bulb, place them in baskets or shallow boxes so as to be easily handled, as you should carry them out into a sunny place every fine day to dry them off in the open air. Bring them into some place at night where there is no danger of frost. By leaving the piece of stem and their roots on and drying them slowly the bulbs do not shrink as they do when dried in a close room. In about three weeks they should be quite dry, then remove the old corm, roots and husk, or outer peeling. It is best to do this in the fall. If you leave it on till spring and the sprouts start to grow you are very apt to break them off and others may not come in their places. Another reason for stripping them in the fall is that they might draw dampness and a small, soft, fussy, white looking parasite would breed under the rough peel.

They are very injurious to the bulb and weaken it very much. Some bulbs I purchased once had them on. I did not understand how to treat them, planted the bulbs just as they were, but the parasites produced better than the gladioli, so that next year I had parasites in abundance. To get rid of them I filled a tub with water and dissolved a small cake of Sulpho Tobacco Soap in it, and put the bulbs into the solution. Result was that I have never seen any of the wooly parasites since. Any dry, cool cellar that is a good place to winter potatoes in is a good place to store your bulbs; keep them cool and in the dark so that they will not sprout until planting time comes.

B. JOHNSON: I have had some measure of success with the cultivation of gladioli this year and last, last year particularly. If you will remember last year they were almost a total failure in Ontario, but I had many magnificent blooms, some having as many as twenty-three flowers on a spike. This is the way I grow mine: About two weeks ago I started to gather some of the street sweepings and the leaves off the trees. I spread the sweepings over the ground, then gather some leaves and cover over the sweepings. I leave that all winter. In the spring I use a fork made in Birmingham, the prongs of which are 14 inches long. I put that down fully a foot, so that my ground is loosened up a foot deep, and I dig in all I can of these street sweepings. I do that early in the spring not waiting for the ground to become friable. Then about the beginning of May and a little later there is a growth of weeds on top of that ground. I plow down about 4 inches deep. I plant each bulb separately, about 4 inches deep and try to get it 6 inches deep, and arrange to have the ground loose all around the bulb. I then cover it over so that it is about 6 inches deep in the ground. I like them deep. I am not particular about getting them up in a hurry. I can imagine what a magnificent root system the bulb is getting, then when they come up they are vigorous. About once a week I go over the ground with a rake and rake it all over. I do not water them at all until the spike has left the leaves. Then if it should be very dry I give them water. I have had some magnificent blooms. There are two kinds I would like to add to the list given by Mr. Hartry with which I have had great success, the Hohenzollern, another kind with a name equally German, Schwaben.

Mr. Woods: With reference to gladioli, while the speakers have done justice to this matter generally, they have omitted mention of the most interesting phase in the cultivation of the gladioli, namely hybridization. If we growers devoted a little more energy to the cultivation of seed and hybrids we would get far more pleasure out of our work than in the growing of hybrids already produced by others. I take a very great interest in this. The expectation and anticipation will repay anyone who attempts to grow gladioli in this respect. I would like to see this feature of gladioli growing taken up more and more amongst our societies.

R. B. WHITE: I have grown gladioli for forty years, and I have had a good deal of experience. To me the gladiolus has always been somewhat of a stiff plant. If you grow these in rows that is the worst possible way. I grow mine in among the pæonies and similar plants; wherever there is a space of two feet I plant a gladioli. and I find that that has a very much better effect. You know there is nothing but green leaves for two-thirds of the summer with such plants as the pæony, and if you have a couple of gladioli grown in between them it gives you color. I find that they do exceedingly well that way. They are not crowded. My garden space is somewhat limited but I like to grow a good variety of gladioli for the reason that they produce color effect in your perennial borders where it is wanted later on in the year. We don't manure the gladioli at all. I simply use ordinary stable manure on my perennial borders in the fall.

There are a few varieties I want to mention. Grow varieties that multiply fast. You can buy a dozen bulbs of a variety and in three or four years you won't have any more. At my farm I took up something like five well developed good bulbs and three or four were quite common. Of course the soil was rich. I have a list here of the names and varieties I have on the farm and these multiply the most rapidly: Europe, William F. Pendleton, Glory of Holland, Czar Peter, Schwaben, Apollo, Carnegie, Empress of India, Mrs. Frances King, Peace, Baron Hullet, Lily Lehman, Primulinas, Halley, Hollandia. I can recommend Schwaben very strongly, it multiplies the most rapidly. I took off some of these fifty bulbs. At Ottawa we have to take them up earlier than you do in Hamilton, as our climate is more severe than yours. These bulbs I have all carefully put away in tight envelopes to plant next spring. In growing gladioli by all means grow with your perennials, having them come on at separate times. When you have one variety they all flower about the same time, and of course the effect is very much better when you have them come on at different times. There is room for an immense increase in the number of gladioli grown.

A LADY MEMBER: All I do is to put them in between the narcissi before they are quite out of bloom, and when I put away the stalks I pack them in boxes in my frost proof cellar and never lose one.

REPORT OF SUPERINTENDENT.

J. LOCKIE WILSON, TORONTO.

In this the fourth year of the titanic struggle for the world's freedom, the Horticultural Societies of the Province of Ontario have succeeded, despite the bitter contest which is still being waged, in doing patriotic work in increased production of food stuff through their gardening efforts. Many a bed that in other years was fragrant with a beauteous carpet of flowers so dear to the hearts of horticulturists was utilized for more needful vegetable products. Our winds of adversity have brought many blessings in their train, and not the least among them was the desire created in the hearts of many of our citizens to become, even in a small way, producers and tillers of the soil. In city, town and hamlet, many a vacant lot, where thistle and brier once flourished, was made to blossom and bloom into gardens fair. With enlarged vision of the thousands of amateur gardeners, and their new-born zeal and enthusiasm the goal in the near future which we should aim at is an active, energetic membership of not less than 25,000. Just think of what might be accomplished by such an army of gardeners. It is up to you, ladies and gentlemen, you who have done so much in the past, to redouble your efforts and victory will be yours. Will you do it? If each one of our members would secure one additional recruit by the fall of 1918 we would have a membership beyond the mark suggested, our present enrolment now being 17,000. Much has been accomplished in the past, but much remains to be done. Health, enjoyment, fair remuneration and a splendid example follow in the wake of the enthusiastic gardener who works in co-operation with nature and with nature's God.

"On every herb on which we tread
Are written words, which, rightly read,
Will lead us from earth's fragrant sod
To hope and holiness and God."

It was our Association that first initiated the vacant lot gardening idea in Canada and in 1909 the matter was brought directly before the Convention. In my report I urged the advisability of using vacant lots in cities, towns and villages for the growing of vegetables as well as flowers by those who, unfortunately, had no land for gardens of their own. I followed this up by arranging to have fifty members of the Ontario Plowmen's Association come to Toronto with their teams and plows and prepare the vacant lots selected for citizens who expressed a desire to become gardeners. Thus to you, ladies and gentlemen, belongs the credit of initiating a movement that has grown to such large proportions throughout our Dominion, and will continue ever broadening, forever growing throughout the years which are yet to come.

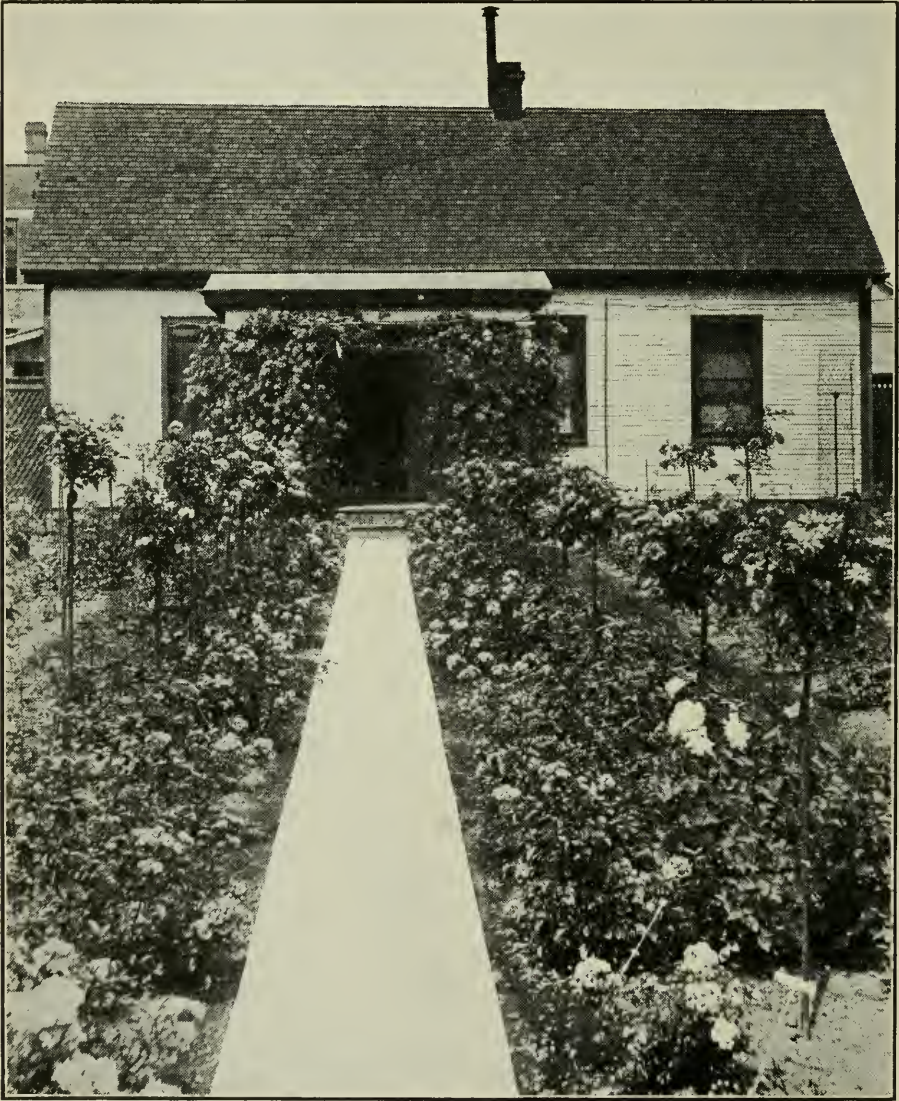
Each year shows a marked advancement in every line of your endeavor, and new societies are being organized in different sections of the Province. The following were added to our list in 1917: Alvinston, Blenheim and Harwich, Brussels, Ingersoll and Wallaceburg. I have received word from many other towns and villages in the Province, asking for particulars as to organization. Ninety societies are now entered on our roll as being regularly constituted. At the last session of the Legislature the Horticultural Societies' Act was amended and its scope enlarged, and now township societies in rural districts may be legally organized with a minimum membership of twenty-five. By this amendment the farmers are given for the first time, the same opportunity accorded to urban dwellers to participate in the work of beautifying their homes and rural school surroundings, and, of course, receiving their share of the Government Grant, which, by the way, has remained stationary at \$12,000 for many years, notwithstanding the large increase in the number of societies organized and rapid growth in membership, which will be still further increased through the recent amendment to the Act being taken advantage of by the farmers. For these reasons the grants are, and will be in the future, greatly reduced. This is a matter which should receive the serious consideration of this Convention if we are to continue our upward climb.

The work of our Horticultural Societies is a combination of practice, precept and example. Rigid economy prevails in every department. The Legislative Grant is carefully guarded and, as you know, an affidavit is required, showing that every dollar of the grant, in addition to the monies supplied by the Society, has been spent for purely horticultural purposes as laid down in the Act. If the Government Grant only was expended, not much credit would be due to our Societies, but the fact is, that in addition to the Government Grant of \$12,000 you expended in 1916, the last year for which complete returns are available, no less a sum than \$28,293, making a total expenditure for horticultural purposes of \$40,293.

The reports from all the Societies are not yet in, but, up to this time, the Ottawa Society stands in the forefront with a membership of nearly 1,500, and may head the list for 1917. In accordance with the suggestions made at the last convention, the reports from the different Societies will not be read, but will be edited and printed in the annual report. I have these reports here and if there are any special suggestions in any of them the delegates present representing the Societies which have sent in their reports might bring them before the Convention and discuss them. A number of Societies held exhibitions during the year. They all report exceptionally fine exhibits. Many Societies offered substantial prizes for best kept lawns and gardens, a line of work which is to be highly commended.

Re the resolution of the Sandwich Society, a copy of which was sent to our different branches in the Province, asking for legislation for the destruction of the

San José Scale which is doing such serious damage in the Counties of Essex, Kent, Lambton, Elgin, Haldimand, Welland and Lincoln. I would draw your attention to the fact that the Legislature has already taken steps to eradicate this destructive pest. In addition to the fumigation of all nursery stock imported into this Province and its destruction, if found infected, Section 7, 8, 10 and 11 of the Fruit Pest Act reads as follows:



A Rose Garden in Hamilton.

7. The council of any local municipality may, and upon the petition of twenty-five or more fruit growers who are ratepayers, shall, by by-law, appoint at least one inspector to enforce the provisions of this Act in the municipality and fix the amount of remuneration, fees or charges he shall receive for the performance of his duties.

8. Upon the report of the municipal inspector to the Provincial Entomologist that there is disease upon the plants on any lot within the municipality, the Provincial

Entomologist shall direct the municipal inspector to give notice personally by the inspector or by registered letter to the owner or occupant of the lot to have the plants forthwith sprayed, or to have them destroyed by burning as may be determined by the provincial inspector, and if this is not done within ten days after the notice has been given, the inspector may cause such spraying or destruction by burning to be done, and he shall report to the clerk what has been done, and the cost of the work, and such cost shall be charged on the lot and be collected as a special tax in addition to the other taxes imposed by the municipal council on the lot.

10. The council shall pay the remuneration, fees or charges of the municipal inspector and shall be entitled to receive from the Department of Agriculture one-half of the amount so paid upon furnishing the Department with a statement of the sums so paid, certified to by the provincial inspector, provided that such statement is submitted to the Minister on or before the fifteenth day of December of the year to which it applies.

11. The proprietor or manager of any nursery shall not send out or permit any plant to be removed from his nursery, until he has received a certificate from the Provincial Entomologist that his nursery has been examined and found to be apparently free from disease. Such certificate shall be good for one year from date of issue, but may be renewed from year to year.

The spraying formula issued by the Bureau of Entomology, Washington, D.C., Circular 124, is as follows:

Kerosene emulsion (stock solution 66 per cent. oil). Kerosene emulsion is made after the following formula:

Kerosene (coal oil, lamp oil)	2 gallons
Whale-oil, soap or laundry soap (or 1 quart of soft soap) ...	1½ pounds
Water	1 gallon

This is a matter of vital importance to the members of all our Horticultural Societies, and the thanks of the Convention are due to the Sandwich Society for bringing the matter before our meeting, as the following trees are destroyed by this scale: apple, crab, pear, plum, peach, sweet cherry, red and black currants.

Each year the printing of our report is delayed owing to the fact that a few Societies fail to send in their returns promptly. Where a Society has not carried out the provisions of the Act and intends going out of business, I should be promptly notified of the fact, as a certain portion of the grant is retained, so that if those delinquents, even at a late date, make a return, there will be sufficient funds on hand to meet the amount of grant these will be entitled to. Apart from these few, however, the great majority of the Societies make prompt and satisfactory returns.

VACANT LOT GARDENING.

The majority of the Societies in this Province have accomplished great things with their vacant lot propaganda. In the Cities of Toronto and Ottawa alone many acres have been cultivated. Ottawa reports over 100 acres from which 50,000 bushels of valuable garden products have been garnered in first-class condition. Those interested in horticulture in Toronto through the Vacant Lot Gardening Association have also done a splendid work and in a large way. The report issued by the Superintendent, Mr. Geo. Baldwin, states: Number of lots under cultivation during 1917, 798, all well cultivated. Number of soldiers and soldiers' families working lots, 80. Average size of lots 3,000 square feet, all marked with signboard. Packages of seeds provided, 725, of which 607 were paid for. Several churches, hospitals, homes, girl guides, boy scouts, included in lot holders. One lot looked after by a returned soldier who lost both his legs, another by a man with only one hand. The condition of both these lots would shame those who are not thus seriously handicapped. All gardens are inspected once a week and reminders sent to those who neglect their plots. The crops produced have a value of \$40,000 at a moderate estimate. It is expected that 1,000 lots will be ploughed before cold weather sets in. Lot holders can have the same ground next year provided that it

can be secured from the owners and on condition that it has been satisfactorily worked in 1917, that a full report has been sent in and that a written application is made to the secretary not later than February 28th, accompanied by a membership fee of \$1.00.

The Perth Horticultural Society has purchased a sprayer and is using it co-operatively, and the results as reported have proved satisfactory to all concerned.

A number of Societies consider that window flower displays are a good line of work and urge that it be taken up by other branches.



Cyclamen.

A novel departure was made by the Windsor Society in offering prizes for the canning of vegetables by children, the products of their own garden plots.

The Canadian Pacific Railway has done more to further the horticultural idea than any other similar carrying company in Canada. The Lindsay Society report that this Company spent several hundred dollars in making their station grounds a thing of beauty and a joy to the travellers who visit that prosperous town. Chatham also reports similar good work by this same Company. I would suggest that the officers of the different Societies in the Province take steps to induce the

railway companies whose lines pass through their towns to follow the lead so admirably taken by the Canadian Pacific Railway.

As far as the Legislative appropriation permitted we sent lecturers to a number of Societies in the Province, and if a larger grant was made this work could be extended. This grant is in addition to the regular appropriation to the Societies. Good results have followed the too limited work hitherto done in this direction.

Never before in the world's history have such startling events of mighty portent been under way. Civilization tottering in the balance and clothed in all the panoply of death-dealing devices is lined up against humanity's most brutal foes, the treacherous, barbarous seekers of world power or ruin, and, by the help of Almighty God, ruin it shall be. United our Empire and our Allies stand, divided we fall. Is this a time for rancour and party strife when the Hun is at the gate? There should be but one aim ever kept in view by all true citizens of our far-flung Empire, that is to stand united, shoulder to shoulder and side by side, so that our flag, the flag that for a thousand years has flapped and fluttered from flagstaves and masthead and over loyal, peaceful British homes, may not be lowered in this awful testing time. On the tempestuous billows of the seven seas ride victorious, thank God, the mightiest navy that the world has ever seen, guarding not only those two little isles of the ocean set in their silvery seas, but, the commerce of the allied nations of the world.

A time like this demands strong minds, true hearts and willing hands, men whom the spoils of office cannot buy, men with opinions and a will, men who have honor, men who will not lie. For while the tyrant with his war-lord creeds, his large profession and his brutal deeds, battles in selfish strife, poor Belgium weeps, wrong rules and freedom into bondage creeps.

I thank you for your kindly and courteous assistance during the year that has just closed. My prayer and your prayer, my heart's desire and your heart's desire I know, is that a righteous and lasting peace may soon crown the efforts of our gallant sons, who fight and bleed and die that freedom may not perish from the earth.

REPORTS OF HORTICULTURAL SOCIETIES.

AMHERSTBURG: This Society in addition to the care of all the public flower beds and a display of shrubbery over six blocks in length had a backyard vegetable contest among school children in which eighty-five took part. Prizes of forty dollars in cash were paid to the twenty-four who headed the lists for gardens of 150, 250 and 400 square feet apportioned according to the ages of the children.

BELLEVILLE: Distribution of seeds to school children, planting beds in parks. Plants and *Horticulturist* given to members.

BLLENHEIM AND HARWICH: Organized in 1917 with a membership of 150. Rose bushes, gladioli and shrubs distributed to members. Shrubs, pæonies, cannas and coleus planted around the Town Hall, and three beds set out on public school grounds. Three thousand tulip bulbs planted this fall. During the summer members exhibited rose blooms in store windows.

BOWMANVILLE: Spring and autumn plants and bulbs obtained for members and plants for a flower bed on the hospital grounds.

BRAMPTON: Spring distribution to members of one box each of salvias, asters, cabbage and tomatoes, and, in addition, each one received a canna root, and a packet of sweet pea and petunia seeds. Cannas and geraniums planted in public places.

BRANTFORD: This Society had a very successful season, the membership this year being 753 and would have been greater but for the trouble experienced in getting supplies.

The Society had competitions for window boxes, lawns and vegetable gardens for the adult members and also had a tulip competition for the school children, and gave prizes in both cases.

We have taken considerable interest in civic improvement and have planted vines at public institutions and put in a large rose bed at the sanatorium, and for next year are planning to further extend this work.

The Society has been encouraging the planting of bulbs by the school children, and the way they have taken hold of the scheme has surpassed our most sanguine expectations. We hope to still further develop this line of our work next season. We have arranged with the instructor of the Technical School to have the pupils build bird houses which are sold at actual cost to our members. We expect before long to see hundreds of these little rustic houses scattered throughout the city.

BRUSSELS: Civic improvement inaugurated in this the first year of our Society. We are greatly indebted to Mr. Hartry, Seaforth, for valuable assistance given and interest shown in our progress. Flower Show held in September, the flowers being sold and proceeds handed over to the Red Cross Society. Flowers were sent to every sick person in the community, young and old.

CARLETON PLACE: Distributed 1,200 packages of flower and vegetable seeds to the children of the Public Schools in town, in order to stimulate their interest in greater production, with satisfactory results.

Did considerable work around Town Hall, also made up a wide border 120 feet long at Central School, the labor for both of which was supplied voluntarily and represents a substantial sum.

Held a lawn and garden competition, also flower show in September at which we had 232 entries and paid in prizes \$52.25.

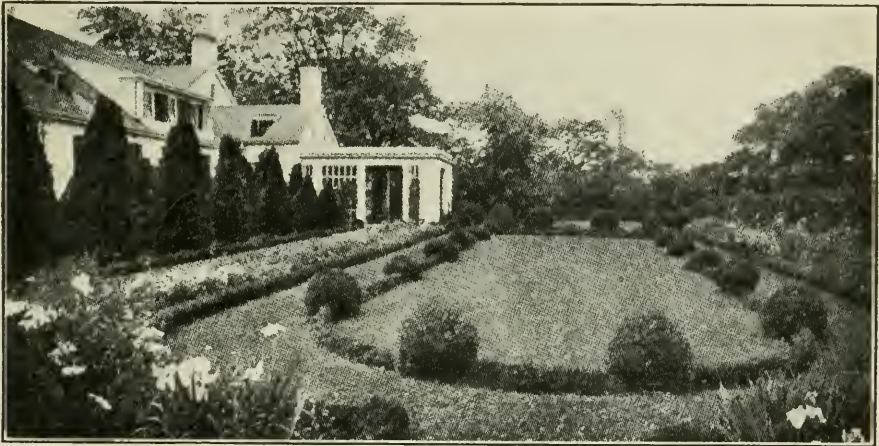
CHATHAM: Mayor proclaimed a public holiday and citizens cleaned up backyards and vacant places, and great improvement in appearance resulted. Book published containing option list and instructions on gardening, etc. Advertisements paid for cost of printing same. In options to members were five Hybrid Tea Roses. Society imported bulbs from Holland selling what they did not use in the beautifying of the city to members at cost. Beds of bulbs set out at street intersections and round Public Library, churches and in parks, vines planted on city and county buildings, and shrubs on school grounds. Urns or vases placed at street intersections and entrances to public buildings. Flag pole in Tecumseh Park furnished with flags. Mayor and Council, Board of Education and the Canadian Pacific Railway all assisted in beautifying the city.

CLINTON: The past year was a successful one. The membership increased from 201 to 250. We held a public meeting in April addressed by Mr. Wm. Brydone and Mr. G. H. Poad, London. The attendance was good and those present showed a keen interest in what was said by the speakers. Mr. Brydone urged increased production and the utilization of all the land and all the labor available. He pointed out the need for every citizen of the town to grow as much as possible of vegetable food for consumption. Mr. Poad in his address on gardening gave hints and instructions as to how each variety of vegetable should be planted, cultivated, harvested, and preserved, and those present received much needful information which bore fruit during the summer in the gardens of the town.

COBOURG: The work done by this Society has been as follows: (1) To bring

to the notice of owners and those responsible, the neglected condition of several vacant lots in the town with a view to having conditions improved. A committee was appointed for the purpose. (2) The Society in past years took charge of the work of beautifying the lawn and grounds of the Cobourg Central Hospital and this year added a large number of bulbs, etc., to the flower beds. (3) The Society placed in each of the class-rooms in the Public and Separate Schools twelve pots of bulbs, hyacinths, tulips, daffodils and narcissi. They were greatly appreciated. (4) We have given to each of our members a subscription to the *Horticulturist*. (5) The Society, as a Society, took part in the spring campaign for greater production, and encouraged children and others to cultivate plots. Under the auspices of the Society, Mr. William Allan, of Toronto, came to Cobourg and gave an address on "Vegetable Growing." Townsfolk are repeatedly bearing testimony to the excellence and usefulness of his address.

DUNDAS: Plans being laid for a series of winter lectures and for extending the production campaign next year. Options given to members of roses, bulbs and



A beautiful garden.

shrubs. Bulbs have been distributed to the members. Flower beds maintained in the park, and a perennial flower bed. These are now planted with tulips. Exhibition of vegetables grown by the School Children's Club, to which the Society made a contribution, was very successful. Prizes given for bird houses and for knitting for soldiers done by girls.

ELMIRA: Distributed gladioli and flower, carrot, onion and beet seed to school children. Had a good flower and vegetable show and furnished plants and bulbs to members. Appearance of new Public Library Building improved by flower beds and window boxes.

ELORA AND SALEM: This Society had its best year since it was reorganized. Besides flower and plant exhibitions members received bulbs and plants. A large field was turned into school gardens, each child getting a lot 20 x 10 feet, and seeds and plants were supplied free. Membership increased to 95.

ESSEX: We had a most successful year our work having been amply repaid by the interest the community has shown in beautifying surroundings. It is most noticeable among the farmers. This year we hope to have a bed of flowers at every public school. Our Society has done much to increase production.

GALT: The flower beds planted in former years were well maintained, and this year several new beds have been planted in different parts of the city, which not only add greatly to the beautifying of these spots, but shows the interest being taken by the citizens in our Society, and the campaign which has been so successfully conducted for the past few years. The children's gardens were a great success, they having made a most wonderful showing at the Annual Horticultural Exhibition. The annual meeting was more largely attended this year than previously, and it speaks well for the new officers who decided on aggressive measures being taken to double the membership.

GUELPH: This Society has been very active this year taking up a number of new features such as protection of song birds, vacant lot cultivation, bird house exhibition, and placing of flower beds on street corners and boulevards. Early in the year Jack Miner gave one of his addresses on birds, the Opera House being crowded and many hundreds turned away. This address was largely responsible for so much interest being taken in our bird department this year. His address was followed by a Bird House Exhibition, the first of its kind held here; the entries were large and the quality fine. On the last evening of the exhibition Prof. Crow gave a lantern address on the habits of our song birds. Geo. Baldwin, Toronto, gave an address in the City Hall in March on Backyard Gardening, which was very instructive, especially to those who started cultivating lots for the first time. Mr. MacLennan of the Horticultural Department at the Ontario Agricultural College also gave a very interesting address in the City Hall in April on Vegetable Growing. A new department called the Vacant Lot and Foreigners' Garden Committee secured from the owners many vacant lots for the use of those who, under a signed agreement, agreed to cultivate them. The lots were plowed by the Society. Mr. Beckwith, Secretary of the Boys' Department of the Y.M.C.A., looked after the boys' department and many fine gardens were made from what have, in the past, been lots grown up with rank grass and weeds. This work took considerable money and greatly reduced our surplus, but we feel that this is a time for production and we are pleased to state that the estimate of the crop produced inside the city limits is \$20,000. We have already many applications for lots for next year and expect a large increase for 1918. The usual number of window boxes were placed at City Hall, Fire Hall and Post Office, and also three beds on street corners, which was a new feature and was greatly appreciated by the public. The Foreigners' Garden Competition started a lot of good work by Italians, and very many fine gardens were the result. A silver cup was given by ex-Mayor Mahoney for the best lawn and flower garden in the city, also a silver cup by the President, J. E. Carter, for the best vegetable garden, together with six cash prizes in each ward of the city, and six prizes for the foreigners' gardens. The entries in all classes were double of any year in our history. Two options were given to each member of roses, phlox, gladiolus, shrubs, vines and climbers, pæonies and iris. Mr. John Coleman, the switchman at the G.T.R. yards, made up a very fine vegetable and flower garden alongside the track that was a blank space in past years, and many favorable comments were passed on this plot. We held a Flower and Vegetable Show in September which was a great success both in entries and in quality. Ribbons were given as prizes and the flowers were sold, both admission and moneys from sale of flowers were given to the Red Cross, the Society paying all expenses. The vegetables were given to the children's shelter. Large increase in membership, about 33½ per cent. over that for 1917.

HAILEYBURY: This Society has done some very good work in the past year,

having managed to interest some who, although gardening enthusiasts, had not previously identified themselves with the Society. Prizes were given for Amateur Garden Competition and Mrs. Hay gave prizes for Cottagers' Garden Competition, both of which attracted some spirited competition. Prizes were also given for Children's Garden Competition and again good results were attained. A Potato Patch Competition was listed and also a competition among children for pressed flowers for prizes given by Mr. P. A. Cobbold, which brought forth good specimens. Prizes were given for vegetables and flowers grown by children themselves. The show from a horticultural standpoint was a great success, there being some 500 entries.

HAMILTON: Membership this year 601, an increase of 75. The by-laws governing this Society call for at least four lectures per year and this year five were given, increased food production receiving most attention, both at these meetings and elsewhere in connection with our work, and to this end over 2,500 pamphlets dealing with the making of gardens, growing of vegetables, control of insect pests, and the conservation and preservation of foods, have been distributed, as well as meetings addressed by officers of the Society. Excellent work was done by the two who represented this Society in connection with the Community Clubs which look to us yearly for assistance. Mrs. Schumacher and Miss Marjory McIlwraith, who took the short course at the Ontario Agricultural College, Guelph, made good use of the lessons learned there, and each week from early spring until the season closed visited systematically so that all the ground was covered by them four times during the season. Their helpful visits giving instruction and hints as they went has led to the request already received to send them back again next year. Children's work was not omitted entirely this year as those in West Hamilton Club were given garden inspection and at their exhibition the winners were rewarded, garden tools going to eleven boys and girls, the cost being generously assumed by Mrs. Hendrie. The children connected with the Presbyterian Italian Mission had little plots under the supervision of Miss McIlwraith and intend to do more next year. These received recognition from us this year and books and diplomas with their garden pictures made some young amateurs in the north end very happy. By interest of members and the co-operation of the Society much of great value could be accomplished in this line of work. One donation of 1½ dozen geraniums was received, and under the tuition of Miss McIlwraith the children were taught to make cuttings and pot the plants and slips. Only a few gardens were opened and visited this season, but these were fully appreciated, the limit being due to the membership working at food production. The grounds in front of the Barton Street Convalescent Home needed attention, and the request for some floral decorations to make brighter surroundings for our returned men met with response from the Board, so hanging baskets and boxes were filled and beds planted. Spring and fall distributions of premiums were arranged, and, in the spring, vegetable seeds went to over 200 persons. Distribution of garden literature received some attention, as returns from previous years show the value of this line of effort; for instance, at a club's competition the winner of a 1st prize for best collection stated that this was due to reading the books given by us to another club for their reference library, so this year as the secretary of the East End Y.M.C.A. reported a dearth of information along gardening lines, and as it was desired, a set of garden books was given. In the conservation of bird life, a work previously undertaken by us, there was a competition limited this year to the Manual Training classes of the Caroline school section.

HANOVER: Large increase in membership. Considerable improvement carried out in town, planting vines around factories, and putting up of pretty window boxes on several large institutions. Society secured a piece of land for a Demonstration Plot, part to be used for nursery stock and the rest for different kinds of flowers for the members so that they can purchase their stock in good condition. Mr. Tomlinson, of the O.A.C., Guelph, drew the plans for this plot and also for decoration of the Public School grounds. The children have become interested in



Snapdragon potted for winter.

the plan and have raised money to purchase bulbs for fall planting, the flowers for the summer beds being supplied by the Society. Mr. McLennan, of Guelph, gave an illustrated lecture on Vegetable Growing which was much appreciated.

HESPELER: Membership is 111. We have distributed flower and garden seeds to each member this spring and also given the *Horticulturist* to each member, and also bulbs as a fall premium. We planted beds on the Town Hall property and have had a good year.

HIGH PARK: This year our Society advocated the growing of vegetables to a

greater extent, and gave a series of lectures on same, and the results as shown by the way our members exhibited vegetables at our Fall Flower and Vegetable Show were very gratifying. We were again fairly successful this year in having a few places in our district improved. The number of entries at our Midwinter Bulb Show and at both our Spring and Fall Shows exceeded other years, and keen interest was taken in our Annual Garden Competition. Membership increased this year to 155.

HILLSBURG: Successful exhibition held in August with 800 entries. Members received options on seeds and bulbs.

INGERSOLL: Organized in 1917, this Society commenced operations with a membership of 175. Held very successful flower show. Also gave premiums with each membership which will be increased as funds permit. Spring planting consisted of 1,000 roses and 300 shrubs, besides 2,000 perennials and annuals. The Society expended about \$100 on school grounds and public beds, which work is being continued this fall, and, as a result of this, a considerable movement is noticeable throughout the town and many beautiful private gardens are being planted. Bulbs imported this fall amount to 32,000, among which are many rare varieties.

KINGSVILLE: A large consignment of bulbs from Holland is expected daily. We had a good showing of tulips on our streets last spring and members have become intensely interested in growing them. We hope next spring to have a fine tulip show.

KITCHENER: Membership shows a slight decrease, a result perhaps of the Home Garden Association formed here at the beginning of the year and the fact that the directors got such poor treatment from the city. The bright future of the work has been among the school children, where an increase of over two hundred members has been secured. The work done in the gardens by the children was very good, and the judges of these plots had no easy task in making the awards. At the Annual Exhibition held on August 22nd and 23rd, the school children to the number of seventy exhibited products of the seed supplied by the Society which were equal and in some instances superior to those exhibited by the adults. The exhibition was a success in every way, the flowers and vegetables shown being very good and the attendance much in advance of previous years. The Society held an Outdoor Competition as in former years and procured judges from outside, who in all cases commented on the good appearance of the homes and gardens of the city.

LINDSAY: Membership this year nearly 300. Held a Bird House Exhibition and gave valuable prizes to the children of each of the five schools in town for the bird houses. We had a column in each of the daily papers weekly, devoted to Horticultural Notes, during the year, which was of considerable interest to many of the members, this space being given free by the local papers. A good display of asters (which is the floral emblem of the Lindsay Society) and other flowers as exhibited at the Agricultural Fair on September 21st, 22nd and 23rd, and prizes offered to members of the Society. This display was much admired and was the means of securing many new members. There is a desire on the part of many members to have a competitive exhibition earlier in the season before the flowers are liable to be injured by frost. Through the influence of the Horticultural Society here the Canadian Pacific Railway have chosen to make Lindsay one of their major flower gardens, of which they have several between the Atlantic and Pacific. They have spent upwards of \$500 this year on their station and grounds in flowers, shrubs and trees, and cer-

tainly deserve the heartiest commendation of the Horticultural Societies throughout the Dominion.

LONDON: The year past has been a very successful one from every standpoint, the membership of 617 paid members being the largest for recent years. The society undertook some new plans which brought it more prominently before the public. In the early spring, Mr. Smith, who was then parks superintendent, very kindly gave his assistance in the way of several lectures and practical talks to good audiences in the Public Library. These lectures created a greater interest in these things on those who heard them, and, as a result, more flowers and vegetables were raised this past year in the city than ever before. The Canada Trust Company, having offered substantial prizes for backyard gardens, solicited the assistance of the directors as judges of same. Inspections were made at stated times and awards made, which proved of great interest. Two flower shows were held during the year and were very successful. The plan of giving awards was adopted and helped very much in creating a greater interest with the exhibitors.

MILTON: Membership, 101. In the spring, aster seeds were distributed to school children for competition in the fall. Flower show held on September 12th. Lawn competition held during the summer, and also a vegetable garden competition, and prizes awarded for window boxes and hanging baskets.

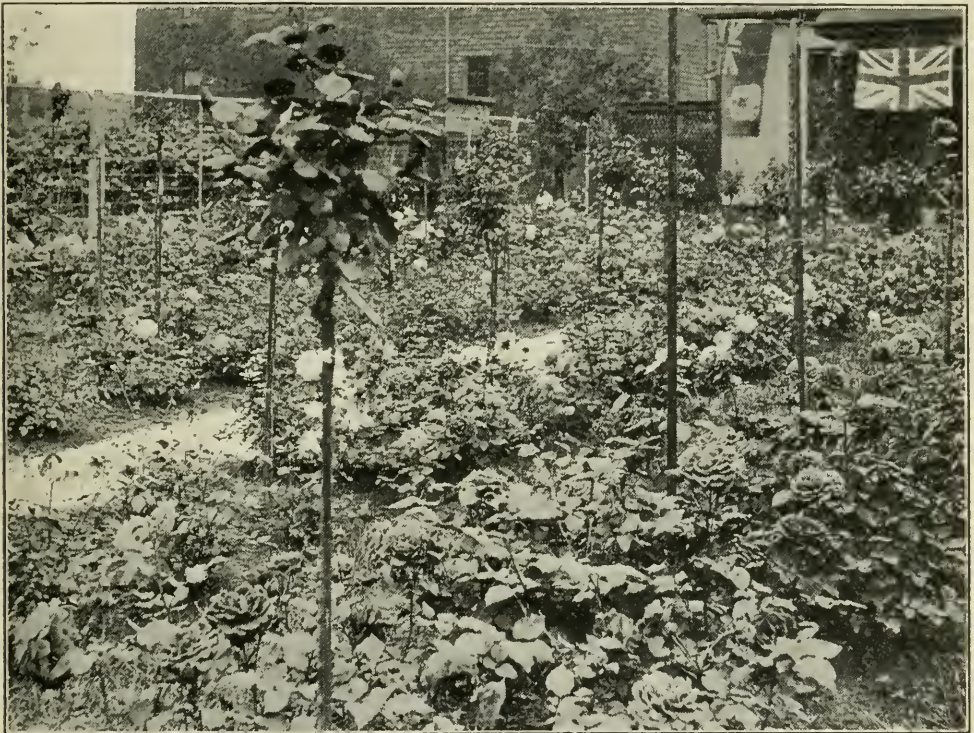
MITCHELL: Membership increased to 132. Good work done in educating the citizens by example. Besides looking after flower beds round the Post Office and Public Library, the new School Grounds are now laid out and beautiful flower beds on three sides of same have a constant educative effect on the children. The caretaker is an active member of the Society and takes pride in keeping the grounds beautiful. Fruit trees were given as premiums to members.

NEWCASTLE: Eleven regular and two special meetings held and an afternoon and evening demonstration of vegetables. Each member received a dollar's worth of flowers and shrubs, and flowers were donated to churches and public school grounds, and window boxes to the Post Office. A start was made in putting into order an unsightly vacant lot in the centre of the village, Membership well sustained.

ORANGEVILLE: The usual choice of premiums in seeds, bulbs, plants, shrubs and trees was furnished to members. Orders for horticultural supplies were filled at 15 and 20 per cent. discount. The privileges of our organization were offered to non-members in the purchase and selection of farm and garden seeds at a considerable discount. In response to the appeal for increased production an active interest was awakened in gardening. We planted bulbs and bedding plants in thirteen beds on our streets and public grounds and cared for same. Organized Princess Patricia Park Association and received charter for same. This property, comprising three acres of waste land centrally situated, formerly covered with large lime-stones and scrub cedar trees, is now in the process of reclamation. Through the co-operation of our members and other citizens, volunteer work has accomplished wonders. Unsightly rail fences have been removed, drains dug, and the large stones assembled in piles for rockeries and on the roadway. Deciduous and evergreen trees were also planted on the border of this property in the spring. Proceedings have been taken under the Ditches and Watercourse Act to drain this land. Awards have been made by the engineer, tile ordered, and contract let to complete the main drain this fall. A number of maple trees for street planting were also furnished our citizens free. A very successful Horticultural Show was held in September.

when prizes were awarded to products grown from seed donated to children of our Public School.

OTTAWA: Most successful year in history of the Society, membership being 1,457. Early in the season plans were laid to carry on a campaign of useful work. A number of special committees were appointed. Each committee consisted of several directors, and in some cases an outside member who was particularly interested in certain work, was asked to serve with the directors. The Publicity Committee enlisted the aid of many of the directors and several qualified citizens in the preparation of a series of special articles for the local newspapers. The newspapers gave extra prominence to these articles, which appeared in their special Saturday



Patriotism and Roses in Hamilton.

editions. The series of articles ran for about three months, from three to six articles being contributed each week. All phases of vegetable, fruit and flower gardening were dealt with. Special prizes and donations were collected by one committee in greater quantities than ever before. Children's work was organized for the first time by another. More educational and special outings were also organized. Two series of lectures were arranged by the Lecture Committee, one consisting of a short course of lectures and demonstrations in practical home gardening, and the other of a series of demonstrations on the canning, drying and storing of fruits and vegetables. Special lecturers and demonstrators took part in these courses. An innovation was made in regard to the Society's flower shows, two of them being held in centrally located city stores, and the flowers sold under the direction of the Ladies' Auxiliary for patriotic purposes. In the garden competition work another innovation

consisted of the provision of a special class for war-time gardens. In this class two silver cups were awarded, as well as attractive money prizes and silver cups to lady members of the Society to encourage more work by members of this sex. The Ladies' Auxiliary of the Society undertook the work of distributing the flowers to the city hospitals, which work has been much appreciated for several years. The largest amount of new work done by the Society, however, was the organization of the Ottawa Vacant Lot Association. More than half of the directors of the Ottawa Horticultural Society worked for this Association, which obtained a membership of over 1,200, bringing under cultivation more than 100 acres of land which in 1916 grew nothing but weeds. It is estimated that about 50,000 bushels of produce was the reward for the extra work along horticultural lines. A number of general meetings were held as usual and five floral exhibitions. The distribution of plants, seeds and bulbs constituted as usual one of the most appreciated and fundamental works of the Society and was even more successful than anticipated. The Society at one of its special outings to the Government grounds at Rideau Hall elected Lady Anne Cavendish, the youngest daughter of their Excellencies the Duke and Duchess of Devonshire, as its Honorary President.

OWEN SOUND: This Society aims at giving its members good value for their fees by securing reliable stock at fair prices. Membership has increased considerably. The work among school children has been greatly extended, 430 scholars participating. Each one received packets of beets, carrots, corn, onion, lettuce and radish seeds, one pound of potatoes and two tomato plants, paying fifteen cents for these, the cost to the Society being twenty-five cents. Many of them sold several dollars' worth of vegetables; others supplied the family table. Principals, teachers and school board are learning the practical benefits of this line of work and are greatly assisting in it.

PARIS: This Society has made a steady advance during the year, the membership having grown from 226 in 1916 to 300 in 1917. Great difficulty was experienced in procuring roses and gladioli, but notwithstanding this, every member was supplied, choosing the rose option with four first class hybrid tea roses. Six hundred and twenty roses were distributed as premiums and upwards of 100 sold. About 4,000 gladioli bulbs were also given as premiums, as well as numerous shrubs. A Rose show was held in July, and a general flower, fruit and vegetable exhibition in August. A new undertaking was the transformation of an ugly plot of land, known as the market square, into a small park. This has given unbounded satisfaction.

PERTH: As in former years, last spring we distributed a great variety of flowering shrubs, fruit bushes, bulbs and plants, and this fall winter flowering bulbs, made up of Easter lilies, narcissus, tulips and hyacinths. There are in Perth a number of members who are deeply interested in Horticulture, and are thorough and practical gardeners. For years our Society has sprayed fruit trees and shrubs on a co-operative basis in the spring, and a year ago we purchased a sprayer of our own, and we are able to report that the spraying has been a success financially as well as beneficial to the fruit-bearing trees of our members. This year we gave our trees two sprays, one as the blossoms were opening, and a second and last spraying as the blossoms were closing. Some of our members have reported that notwithstanding the sprays given their trees, worms found a lodging place in the fruit. It was a matter of observation that they did not enter the calix end of those apples that had been sprayed with the poisonous solution, but on the side, especially where the apples

were hanging in a cluster. Our members would like to be advised if there is a cure or preventative for the worm that enters the apple at the side.

PETERBOROUGH: The Horticultural year just finished has been a fairly successful one. The membership was slightly lower to that of last season, but much good has been accomplished. In the spring a choice of some thirty options was offered members, including shrubs, perennials, annuals and the *Canadian Horticulturist*, while this fall bulbs were distributed as usual. The Society, by means of a grant from the city, cared for the two central parks, which were in excellent condition through the summer. We also distributed free Boston Ivy to some of our public institutions, and will supply the balance next season. The Annual Lawn and Garden Competition was much better than usual, as we were able to offer three special prizes kindly donated by three directors, and marked improvement can be noticed during the period of the last five years resulting from this friendly competition. Peterborough, like the rest of the Province, joined heartily in the back garden movement, with the direct result that many homes have almost a complete supply of vegetables for the winter, and greater results are expected next season.

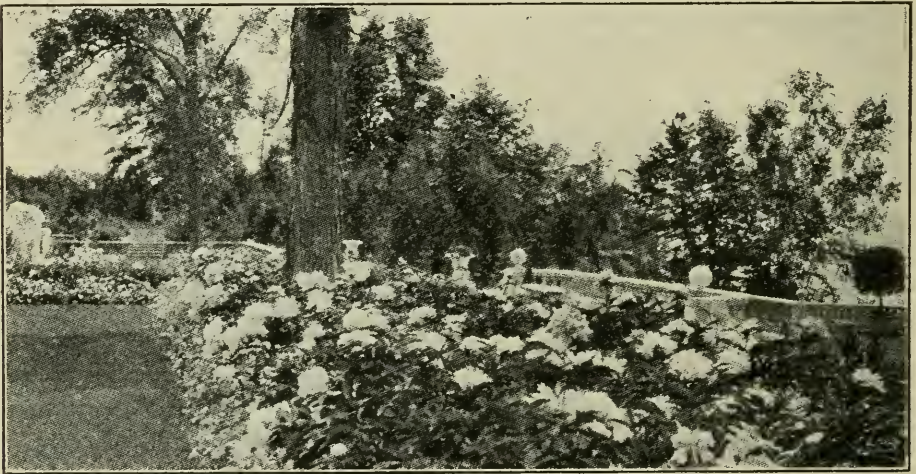
PICTON: Membership nearly doubled. The Society distributed seeds, roses, peonies, dahlias, plants and gladioli bulbs. This fall tulip and hyacinth bulbs were given. The address of Mrs. Potts, of Hamilton, illustrated, on March 30th, was very interesting and instructive.

PORT HOPE: This Society has proceeded along lines similar to former years. We furnished our members with plants, bulbs and *Horticultural Magazine*, and aided the Port Hope Hospital in beautifying their grounds, and otherwise encouraged our citizens in civic improvement. We aided in the movement last spring for Garden Production, and largely through our efforts a Garden Production Committee was formed which did splendid work.

ST. CATHARINES: This Society has closed one of the most successful years in its history. We offered with the usual premiums of bulbs, plants and shrubs, one of vegetables, as an inducement to encourage thrift, and urged every one to utilize every available foot of ground. Prizes were offered for the following gardens: Best cropped lot grown to potatoes only; best cropped lot grown to vegetables only; best back garden grown to vegetables by soldiers' dependents. They were all entered into with keen interest and eighteen prizes in all were awarded. We supplied 3,000 school children with aster seeds and gladioli bulbs; held two magnificent exhibitions, a Rose Show in July and the Fall Show in September, both of which exhibitions would be very hard to surpass, for our Armoury was a mass of most beautiful colors, and in September we had a splendid exhibit of vegetables grown and cared for by some of our Local Girl Guides. The proceeds from the sales of flowers and from refreshment booths at the July and September Exhibitions were given over to patriotic societies.

ST. THOMAS: The year 1916-17 has been on the whole the best year in the history of this Society. During the winter and spring excellent addresses were given by H. J. Moore, Niagara Falls, on "General Floriculture" and "Roses"; Miss Louise Klein Miller, Cleveland, on "School Gardens"; George Baldwin, Toronto, on "Home Gardening"; and by J. A. Washburn, on "Dahlias." A Home Gardening section was organized and several acres of vacant land obtained on which fine crops of vegetables of all kinds were grown. Interest in flowers was kept up by several special shows and by a continuous display of exceptionally fine blooms in one of the finest show windows in the heart of the business district. Here were shown

tulips, hyacinths, iris, roses, sweet peas, pansies, gladioli, dahlias, and other blooms, all shown in handsome receptacles of a suitable shape and color for the particular flower. This has again proved to be one of the finest educational features of our work. The special shows were the Annual Tulip Festival for three days in May, which was again a great success and created widespread interest, visitors attending from all parts of Ontario in spite of the backward weather at the time; a show of gladioli at which eighty varieties were shown, and a dahlia show which included 150 varieties. No finer display of either gladioli or dahlias has ever been made in Ontario. To assist in the work in other cities and towns, we sent large exhibits on several occasions to shows and fairs, and on no occasion entered for competition, although our exhibits would easily have won a place. We exhibited tulips at Tillsonburg, London, Ingersoll, and Aylmer; roses at London; seventy varieties of gladioli at Toronto Fair; one hundred and fifty varieties of dahlias, seventy-five



Pæony bed in full bloom.

varieties of gladioli and various other flowers at London Fair; and a large display of gladioli, asters, etc., at Wallacetown Fair. We answered a great number of enquiries from other societies and from localities in which no society had as yet been organized. We lent our colored lantern slides on several occasions and our president addressed meetings in several places. We also helped several societies in their buying, and by co-operation we obtained very low prices and a very high quality of goods. During the year an arrangement was made with the M.C.R.R. Company, and the beautification of the lands near their depot was begun. The land has been ploughed, levelled, thoroughly summer fallowed and the walks and beds laid out. Next year the work of planting shrubbery beds, flower beds and trees will be gone on with, and in time a beautiful park will have been created out of what has been for a generation only a vacant commons. The work of beautifying streets and boulevards has been continued and many plants and shrubs presented to city parks. Among these were 250 selected perennials, and several rare roses and other shrubs. In the public beds along boulevards were planted nine thousand cannas, geraniums, salvias, coleus and other plants. Cement urns filled with geraniums and other flowers were continued at the corners of business streets and in front of public

buildings. Bouquets were sent to the hospitals, churches, and to the sick as in former years. During the season from two to four men have been employed on the public beds and boulevards at an expense for wages and teaming of seven hundred dollars. Total receipts for the year, including donations, membership fees, bulbs and plants sold and Government grant and city grants were six thousand dollars.

SANDWICH: This Society had a very successful year. The annual Flower Show was held as usual with a very good exhibit in the Town Hall on September the 5th and 6th. The Society again kept all the boulevards in the town free from weeds and long grass. In addition to setting out about fifty corner beds and taking care of the small Soper Park, we kept a man on all summer. Our membership has been more than maintained, having been increased to 281, as against 257 for last year. Our expenditure was over \$1,300. Every member receives the *Horticulturist* in addition to options.

SEAFORTH: This Society had another successful year, with a membership of 220, or double that of 1916, the increase being due to an energetic secretary and a live board of directors, who look forward to the 400 mark being reached in 1918. During the year the flower beds at the Post Office, Town Hall, Carnegie Library, and Victoria Park were planted with cannas, salvia and crocus, and donations were also made to the Public and Separate Schools and Collegiate Institute. Owing to the scarcity of labor the area at the G. T. R. depot was not put into shape, but the Society and the officials of the railway hope to have this done during the coming year. The annual flower show was held on September 14th, and drew a record attendance, the entire exhibit of cut blooms being donated to the Red Cross Society, the net proceeds amounting to \$40. Roses, dahlias and asters were shown in many new tints and shades, the rose blooms especially being fully as good as the June flowering. As the number of rose growers in town has increased remarkably during the past few years, the Society intend holding their first Rose Show next year. Instead of the usual distribution of bulbs for fall planting, the Society gave each member three varieties of fibrous-rooted begonias.

SMITH'S FALLS: This Society is one of the live factors in this community for the beautifying of the town, for increased production, and for the training of the boys and girls in the necessity and dignity of labor. We distributed flower and vegetable seeds to the school children, as well as tomato plants, and in September held a show in connection with our own Autumn Show, when liberal cash prizes were given for flowers and vegetables. Our members grew double the quantity of garden produce, as well as promoting the cultivation of vacant lots throughout the town, caring for the town parks and planting the flower beds and window boxes around our public buildings.

TILLSONBURG: At the beginning of the year a good deal of assistance was given to the campaign for food production. Public meetings were held at which illustrated addresses were given, and the movement given the greatest impetus possible. Window shows were held and a local window used for display of individual blooms properly described. Beds about the town hall and in other parts of the town were planted and the small park was cared for. The usual show in the late summer was held in the town hall and was visited by a large number of flower lovers. Bulbs and plants were imported in large quantities and distributed to the members. Perhaps the best work of the Society lies in the great development of the culture of the tulip. Two years ago the Society captured the handsome trophy at St. Thomas. This has made the members proud of their skill and anxious to hold the cup for the third suc-

cessive year. All the flower lovers in town are planting tulips and the finest specimens are to be seen in the gardens here. The exhibition of late tulips held by the Society would be hard to surpass. To this display the neighboring towns sent their best blooms and it has promoted the organization of societies and has brought life to others. Hundreds of varieties of Darwins, Cottage Breeder, Rembrandts and Parrots were seen by the great crowds who thronged the hall.

TORONTO: Silver and bronze medals were donated to the public schools for competition in flowers and vegetables. The Military Convalescent Hospitals were supplied with flowers, and \$150 worth of seed potatoes given to the Vacant Lot Association. Held a show in September of vegetables and bouquets of flowers open to the public, in which there were classes for returned soldiers and wives and dependents of soldiers on active service. A large quantity of seeds in packages were also given to the Women's Thrift Society. Regular monthly meetings held and interesting addresses given at same.

WALKERTON: Flower and Vegetable Show held on August 24th, the prizes being bulbs or plants from the greenhouse supplied at wholesale prices. Each member received fifty cents to expend on bulbs and plants, and also the *Horticulturist*.

WALKERVILLE: Over 7,000 packages of seeds given to school children, and plants, shrubs, roses, bulbs and ferns to members.

WALLACEBURG: The officers and directors held meetings in the Public Library regularly to plan for work to be done, and we laid out sixteen public beds throughout our town, planted with cannas, salvia and geraniums, etc., besides securing three different plots of ground that we laid out into public parks, which were very tastefully arranged by our two nurserymen. We gave options of shrubs, cannas, salvia, gladioli and geraniums to our members. We received several donations of money for our Society; \$100 from our Town Council, \$25 from the Glass Factory, \$25 from our Sugar Factory, \$10 from the Masonic Lodge, \$20 proceeds of sale of cut flowers at the Fall Fair, and \$22 from three members. We have ordered 12,000 tulip bulbs through the St. Thomas Society, to be planted as soon as received, half of them for our public beds, the other half for members. We also requested our Town Council to have the water piped to these public parks, and they granted our request, and we bought fifty feet of hose for one park opposite the Public Library. Membership is 137, which is most creditable for a new Society.

WINCHESTER: Membership, 182; increase over last year of 17. Last spring the usual plan was followed of supplying perennials, shrubs and plants to members as their options from the Society. In addition to this any member who wished to order extra supplies were given same at cost price through the Society, to encourage the planting of flowers and shrubs to beautify our town. We cared for the flowers around the churches, schools, park and hydro grounds, and planted trees along the main thoroughfare to C. P. R. Depot. This spring each child over ten years of age was given a package of carrot and beet seed and one dozen onions, with the object of planting them and exhibiting at our Fall Fair. It proved a great success, as there were a large number of entries, and we offered four money prizes for each section.

WINDSOR: During the last year there have been a great number of activities in connection with our Society and we have accomplished a great deal, and created an influence, especially among the children, which will have a very lasting effect. Mr. T. Carter gave a talk on "Parks" at the time when the city was about to form a Park Commission. We feel that we aided the movement whereby a Park Commis-

sioner for our city was elected. In the fall we encouraged the boys in the Manual Training Classes to build Bird Houses, and offered \$35 in tools, as prizes. The Bird Houses were on exhibition in Grinnell Bros.' window for three days and were sold, and the boys donated a portion of the money to the Patriotic Fund. Mrs. Potts gave us a very practical talk on gardening at the Collegiate, illustrated. At the lecture we had on exhibition several cans of vegetables and fruit, kindly loaned by Mrs. Colby, Walkerville, which had been canned by the cold pack method. These were of great interest to the ladies, who were encouraged to try this method. The Home and School Garden movement, which was started three years ago, was continued with more interest and better results. The Board of Education gave great encouragement, and there were nearly 20,000 packets of seeds sold. There were not so many Home Gardens as there were the previous year, on account of the Resources Gardens. The Resources Gardens were under the supervision of our President and



Typical English cottage and hedge.

the Chairman of the Board of Education, and were worked by 310 of the school children. The products of these gardens were all turned over to the Resources Committee and were canned and sold for the Patriotic Fund. The School Garden Competition was very keen, and Cameron Avenue school garden was adjudged the best, and they now own the silver cup, donated by this Society, they having won it for two consecutive years. A window Flower Show held at Jeff's grocery store realized a nice sum, the entire proceeds of which were turned over to the Red Cross Fund. Great preparations were made by us for the annual fair. The Horticultural building had been re-decorated very artistically for us, and we had a very splendid exhibit of flowers, grasses, fresh vegetables and canned vegetables and fruits, all exhibits being grown by members of our Society, mostly children. Several prizes were given to encourage the children, who were very enthusiastic. Through the efforts of our President the children were taught to do canning, and several of them canned the vegetables from their gardens, which were also exhibited at the fair. We had a flower booth, the flowers being donated by our members, and the proceeds were given for patriotic purposes. We had a very novel attraction—a booth decorated with vegetables, grains and root crops grown by the inmates of the London Asylum.

WHITBY: Most of our work has been of a similar nature to that carried on in previous years. Last spring, just before gardening operations commenced, we discussed the conducting of weekly lectures on vegetable and flower growing with the High School Board. The Principal of the High School, Mr. Johnson, agreed to this, and we decided that for six consecutive Wednesday evenings, we would arrange for a lecture on some phase of gardening, in the Assembly Room of the High School. Lecturers were sent from Toronto, besides local speakers. The interest taken in the work by those who attended was very gratifying, and considerable good was accomplished. In the spring, the usual selection of seeds, plants and bulbs was offered to the members as an option. In addition to this, we distributed about 500 or more packages of staple vegetable and flower seeds among the school children of the town. We also supplied plants and bulbs to one of the schools to be used in decorating the school grounds.

In September a vegetable, fruit and flower show was held, at which the greater number of exhibitors were children who had received seeds from the Society in the spring. Open classes were also included in the prize list. We had one of the most successful shows that we have yet held. Nearly all of the classes were well filled and competition was keen. The prizes in most cases were composed of fall bulbs, as it is the aim of the Society to encourage the growth of flowers and vegetables. This fall we have distributed the usual amount of fall bulbs for indoor culture among the members of the Society. In addition to supplying seeds, etc., as options for the Society, extra plants were procured for members, and they received reduced rates on all of the material that we have supplied, and we endeavor to get everything true to name and of good quality.

WOODSTOCK: Bulbs, shrubs, roses and bedding plants distributed to members, and 868 packages of vegetable seeds to school children, the products to be exhibited. There were 420 entries for same. Membership trebled over that of last year, being now 300.

THE PRESIDENT: We are all delighted with that excellent report. I want to congratulate Ottawa on the splendid membership they have acquired, and also Toronto and Ottawa for their splendid work in the Vacant Lot Gardening line. It is really wonderful what they are doing. I have no doubt a good many of the societies in the smaller towns and cities are doing equally as good work in a smaller way.

While we in St. Thomas have dropped in membership this year, we have increased our assets by about \$1,000, and, in justice to the railway companies, the Michigan Central have granted our Society \$500 a year for five years. I mentioned this morning my gratification at the work in the Vegetable gardening line. I refer particularly to the work of the two big cities mentioned in Mr. Wilson's report. Now that should be the big end of our work. We must not forget the beautification, of course, but we must more than ever emphasize the vegetable production. I had never grown a vegetable before this year. I had all flowers. This season I secured a lot, and we now have potatoes of my own growing. Our Society reclaimed a vast weedy area. When we go and ask for additional support from the Government we want to put the practical end up to them and show them what the horticultural societies are doing in the way of increasing food production.

J. A. WEBBER: The Hamilton Horticultural Society is strong on vegetable growing this year, having associated themselves with the Garden Club of Hamilton.

We grew 2,400 bushels of potatoes. Mr. W. G. Walton gave prizes of \$100, the Hamilton Horticultural Society gave \$20, and the Hamilton Scientific Society \$10. This year we distributed \$250 worth of garden seed. Over 255 members took up lots of the Garden Club, and the members of the Society generally went largely into vegetable growing in their back gardens. Of course the price of seed potatoes was very high this year and the profit may not have been as great as might be expected, but still a large quantity were grown, and the plots are in better condition for cultivation next year. The Society will take the same stand this coming year as it has taken in the past. It will lend every possible support and assistance to its members and the public generally in planting vegetables and garden products next year.

MR. FULLER: The Windsor Horticultural Society distributed about 20,000 packets of seeds among school children, and gave prizes. We had a showing at the Agricultural Society's fair, and altogether we had a very successful year, and I think it will be improved upon for 1918.

MR. BAKER: In Lindsay we worked about fifteen acres of vacant lots that had been overrun with burdock and other weeds, and we raised about \$2,000 worth, and the work is practically just started, but we think that next year we can do very much more. The work is being backed up by all the organizations in the town, and was started by the Lindsay Horticultural Society.

REV. T. H. BROWN: We have had a most successful year in Seaforth in every respect. Not only have we utilized every vacant lot and grown a tremendous amount of vegetables, but we also went further through the whole County of Huron, and lectured for the benefit of those people, that they might also take up the work, and the amount of stuff that has been grown in the vegetable line has been most extraordinary. As far as I am concerned, I have grown a great deal more vegetables than I can possibly use. I am not very fond of cabbages, but I grew a great quantity which I am very pleased to give out to anybody who wants them.

MR. NORMAN: In addition to the vacant lot production in Galt, which we have carried on very aggressively, we have rented about twenty-five acres of land from farmers and planted that chiefly in potatoes. On account of the high price of seed potatoes we did not make anything, but still the potatoes raised do not cost us more than \$2.00 a bag. That is in addition to the vacant lots, of which we have a hundred. Of course back gardens were also cultivated.

A MEMBER: This spring, when the president of our Barrie Society took up vegetable production, he wrote a letter to the Board of Trade and Council, offering our hearty co-operation in anything they would do. The result was that a club of the business men of the town was formed and associations were gotten up that soon brought the business into shape and the result was most satisfactory. We had good results so far as the town was concerned in the growing of vegetables, and I think our people are in many cases fairly well supplied with ordinary vegetables for table use. Although some people have been saying that next year these plots will be overrun with weeds, we have put our heads together and we will not stand for that, and will see to it that these plots are trimmed up and made to look decent.

MR. ROBINSON: I ask Mr. Wilson what the Government's attitude is in regard to the suppression of the San José Scale, as to what a municipality has got to do in order to enlist the Government's assistance in regard to it. Mr. Wilson's answer would be of great value to the Convention.

J. LOCKIE WILSON: I refer Mr. Robinson and the Convention generally to sections 7, 8, 9, 10 and 11 of the Fruit Pest Act as quoted in my report. The action

to be taken is left altogether in the hands of the municipalities. If you cannot get twenty-five farmers or fruit growers in any locality to sign a petition for the destruction of this pest, you can scarcely expect the Government to take further action. Passing resolutions will not have the desired effect. You might ask that the Legislature make the Act more stringent and compulsory.

MR. RODNEY: We have had an inspector in Walkerville for the last four years and pay him \$100 a year. The Sandwich Horticultural Society sent us a circular asking us to co-operate with them. We advised them that we had an inspector. We wrote to the Agricultural Society about it, and had the satisfaction of being advised by them that they would pay half the inspector's fees.

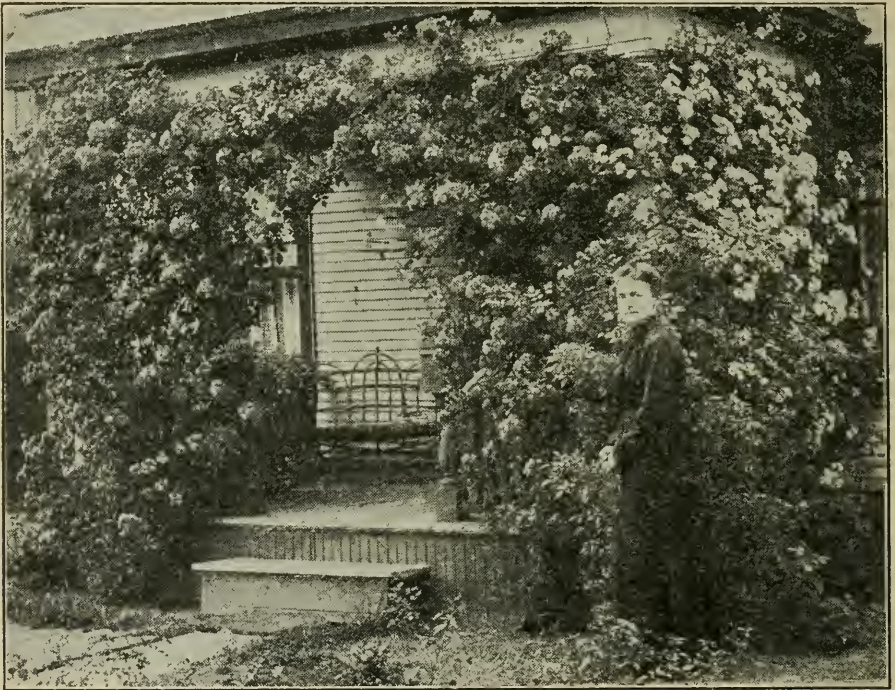


Photo. Geo. Pelton, Hamilton.

Tausendschon and Crimson Rambler Roses.

A MEMBER: A lot of affected trees in Walkerville have been cut down by the inspector in spite of the protests of those interested.

R. WHORLEY: This Association should follow up the diseases brought in from abroad. The Act covers stock in Canadian nurseries, but does it also cover what is shipped from abroad?

J. LOCKIE WILSON: It would be a ridiculous proposition for the Government to pass an Act to cover our own nurseries and then allow outside stuff to be shipped in infested with the pest. The Federal Department of Agriculture have control only over the importation and exports of nursery stock, etc. I again repeat that on petition of twenty-five interested parties to the municipal council they must appoint an inspector. This is imperative on the part of the municipal council.

MR. WHORLEY told of an incident where he ordered \$220 worth of bulbs from a firm in Holland. The stuff was shipped, he said, to Haliburton in error. When it

finally came to him some of the lilies of the valley had rotted in the boxes. The bulbs had a good deal of fungus, and had, he found, never been inspected by any person or persons from New York on until he received them. He inspected them and sent them back to the agent in New York. The consequence was he refused to pay for them. In October he received a summons to pay for them. He had had the customs officers inspect the bulbs after opening, and had a bill of expenses of \$150. "I faced the trial with my witnesses and won out. I then turned around and sued the company for \$100. I got \$70, but the Government never helped me to get that money from Holland. I had my witnesses and my solicitors to pay. What are we going to do as an Association if we are going to have it put over us like this by a Canadian law? If we lose a case the foreign firm can collect the money; there is no law here to protect us."

DR. BENNETT: If you will write to Dr. Gordon Hewitt, Ottawa, he will send you a copy of the Pest Act. The Tillsonburg Society had some bulbs examined and they found them full of some disease. We should take up the delays with nursery stock and bulbs at the frontier. I don't know who is to blame, but shipments are delayed for days and sometimes weeks, and then the boxes are thrown together and sent on the railroads when they are ready. There might be an excuse this year, but it has occurred in former years as well.

VACANT LOT GARDENING.

THOMAS D. DOCKRAY, TORONTO.

Vacant Lot Gardening in Toronto, in a large, organized way, began in 1915 with 150 lots. In 1916 there were 300. And this year, 1917, the Toronto Vacant Lots Cultivation Association, in co-operation with the Rotary Club, had 800 lots on which vegetables were grown. The Association obtains the use of these lots from the owners by promising to vacate on a week's notice. The lots are manured and ploughed in the fall, if possible, and harrowed in the spring. In order to lose as little time as possible over the preparation of the ground, the Association tries for the largest piece of vacant land first. One of their patches is a small farm of thirteen acres, affording lots for sixty-five gardeners. But, where gardens in any neighborhood can be found or obtained by the people themselves, the Association will prepare these gardens, even though they may be as small as 80 by 100 feet, making enough for two gardeners. The Association tries to give each person a lot 50 feet by 80 feet, and the average runs about that size. Mr. George Baldwin is the superintendent of all this work, and will willingly explain it to those desiring to form Vacant Lot Gardening Associations. And it is urged upon all Horticultural Societies and civic bodies to form such.

DESCRIPTION OF LOT.—On the corner of Dovercourt Road and College Street there were four Vacant Lot Gardens, each with a frontage of 50 feet on College Street and a depth of 80 feet, or 4,000 square feet. Mine was the most westerly lot of these four, next to the lane. Across the lane is a moving picture theatre, three storeys high, that shades the westerly 20 feet of my lot from about 4 o'clock. High trees on College Street shade the southerly 30 feet of the lot from 10 o'clock until about 2. The soil is a brown sandy loam, naturally good. But the greater part of the lot, in fact, the part of it in full sun, has been covered with about 18 inches of

sandy subsoil dug from the cellars of the large buildings around. By deep trenching I was able to get some of the brown soil on top of the sand.

The man who had the lot last year, planted it, after it had been ploughed and harrowed for him, and then disappeared. So twitch grass, lamb's quarters and pig weed grew very high and thick on the lot. But I had very little difficulty with the weeds, as I hoed and cultivated frequently.

STREET SCRAPINGS.—The lot was ploughed in November, 1916, and harrowed in April, 1917. Not finding any manure in the ground, although the Association usually spreads manure before ploughing, I got in a large load of street scrapings. This was a grave mistake. I found the scrapings from the asphalt pavement so dry and volatile that they could not be handled with a fork. On the other hand, they contained so much felt or fuzz from carpet sweepers that, if placed three inches deep on the soil, the spade would not cut through them in digging. so they had to be put in trenches and covered. All of which took a great deal of time. I found no bad effects from the asphalt dust, oil or gasoline that is usually urged against street scrapings. I found that they had considerable manurial value, as the vegetables grew better where they were. But they cause a dirty, dusty delay, if put on in spring.

DRILLS TWO FEET APART.—I decided to plant in drills running north and south, two feet apart and across the ploughman's furrows. As the lot is open on all sides to the public and there had been a short cut across it for years, I had some difficulty in making my plan. I did not want to tempt the public or attract their attention by putting melons, peas, onions, carrots, corn or squash near the boundaries, so I put potatoes around the outside. This was a mistake, for I got the one vegetable in the shady places that will not grow there.

SEEDS IN HOT BED.—About March 27th I planted the seeds of cabbage, cauliflower, Brussels sprouts, tomatoes and celery in the hot bed. They should have been planted two or three weeks earlier, as they were very small, though vigorous, when I transplanted them to the lot.

In preparing the lot for seeding, sometimes I dug a large patch, but in other cases I just dug a strip 16 inches wide, leaving 8 inches undug between the rows.

ONIONS AND SPINACH.—The first planting on the lot was Dutch onion sets and two kinds of spinach on March 31st. In spite of the cold, raw spring, these kept ahead of several other plantings later on. The last sowing of spinach was about the middle of July. It did not pay, as it produced very few leaves and went to seed at once.

Like everyone else I planted more radishes than we could use, even sowing them on the earth thrown out of the celery ditch. But the green seed pods of radish can be pickled.

PLANTING SEED.—The Association presented me with twelve or fifteen kinds of seed. In addition to these, kind friends gave me little packages of seed, "just to try." So it was not very long before I had a great many little rows planted and began to worry about where I would find room for the potatoes and all those little plants that were coming on in the hot bed.

POTATOES.—I planted some large whole potatoes, some small whole potatoes, and some potato peelings from a quarter to half an inch thick. But mostly I planted them cut up into pieces with two eyes on each. They were all Delawares. Under equal conditions they did equally well. Those in sunshine did much better, and gave more tubers than those growing in partial shade. The drills were two feet

apart and the sets one foot apart in the drills. My neighbor put his three sets to the hill and the hills three feet apart each way. We thought his a little better than mine, as he could hill them higher and from all sides. They should be hilled slightly at the moment of planting. Otherwise you cannot tell where they are and will be afraid to hoe until the potatoes come up, and the weeds will get ahead. I planted potatoes when I could get at it, from May 7th until May 28th. A neighbor across the road got better results by planting a week or ten days earlier. We heard a great deal about blight. My neighbor sprayed with Bordeaux mixture. But we could see no difference. Perhaps none of us had blight.

I picked the striped potato bugs twice and went over the plants again twice and destroyed the patches of yellow eggs. But the pink larvæ with the big appetites finally appeared. So I sprinkled the plants twice with a watering can at an interval of about a week, using half a pound of paris green.



One of Toronto's vacant-lot gardens.

I planted about four pecks of cuttings. I dug about eighteen pecks of potatoes. The average size was about two inches long. Many of them were larger than this, but very many of them were as small as marbles. But I dug them all and find that they can all be used for food.

PEAS.—The trellis for the peas was put up before the peas were planted. I wanted it to act as a hint to the public that the runway diagonally across the lot was temporarily closed. I used three wires, stretched on stakes. Alongside of these I stuck in trimmings from shrubs and tied them to the wires with bits of string and wire dug up out of the lot. I planted the peas on April 17th, too late by ten days, even in such a cold spring. I used Michelmas, Gradus and American Wonder. The Michelmas grew about 20 inches high, the Gradus about 15, and American Wonder only about 6 or 9 inches. American Wonder was only about five days earlier than the others. Each plant of it had from three to seven pods, and each pod had from two to five peas. Some more American Wonder planted on July 5th did exactly the

same, showing that poor ground will produce some peas anyway. Altogether I had twenty-four quarts from a row thirty-six feet long.

The beans were Wardwell's Kidney Wax and the Green Pod. When the pods came on them, I picked them, thinking more pods would come. But they did not. A second planting of beans in late July where the spinach had been, gave but a few pods in late September when stopped by the cold weather. A second planting of beans should have been made about a week or ten days after the first.

LETTUCE.—When the lettuce had leaves about the size of a five cent piece, I noticed that something was nipping them. The dozens of experts who came around to talk whilst I was working attributed this to everything from aphids to rabbits. So I strung some fine black thread over the lettuce. This stopped the sparrows. I afterwards found some rustling paper tassels hung over the lettuce to act better, as they did not interfere with the growth or picking of the lettuce.

CABBAGE AND CAULIFLOWER.—On May 19th I transplanted two kinds of cabbage, two kinds of cauliflower, savoys, red cabbage and Brussels sprouts from the hot bed to the ground. They were very small plants but vigorous. I clipped a small piece off the end of the leaves, so that the plants would offer less resistance to wind and rain. In three days the cut-worms had clipped the rest of the leaves off. I scratched around the roots of the ruined plants, killed the cut-worms, and planted again in the same place. Also I dug up and raked the ground for twenty feet at each end of my lot, so as to kill or expose the cut-worms that breed in such grassy or weedy waste places. In a few days more most of the cabbage family disappeared again and the lettuce too. Again I killed all the cut-worms I could find and filled up the blanks for a third time. Then I mixed up wood ashes, coal ashes, wood soot, coal soot, lime, sulphur and salt, in fact all the certain sure remedies that all the "rail birds" around my lot prescribed. This mixture was placed in a ring around the plants and had some effect in preventing their complete destruction. That is, the cut-worms only bit the tiny heads out of the cauliflowers and left me, all unwitting as I was, to cherish a large number of bouquets of cabbagey leaves for the rest of the season. For the fourth time I filled up the blanks, using up the rest of my plants from the hot bed and some savoys a friend gave me. Then I mixed up some bran and water into a thick porridge and put a little golden syrup into it and enough paris green to give it a slightly greenish hue and placed a small spoonful of this close to, but not touching, each plant. I lost no more. But a great many of those that had been bitten, but not killed, produced no heads. However, I had enough cabbages and cauliflowers to make it worth while. The Brussels sprouts had only produced the tiniest sprouts when I had to pull them up on October 22nd to allow the lot to be plowed. I shall not plant them again. My neighbor happened to have a number of pieces of stiff, grey paper, six by eight inches. These he formed into cones or funnels and put them around his cabbage plants, leaving the funnels standing up about four inches out of the ground. He lost very few plants by the cut-worms.

TOMATOES.—The tomatoes I planted were represented to me to be Chalk's Jewel, Earliana and Bonnie Best. And some of them turned out to be the old, wrinkled Ponderosa, which some of my friends aver is the best flavored tomato, even though it looks so badly and is so difficult to skin. The plants were placed two feet apart each way. I staked them, keeping some of them to one stalk and letting others run to four, pinching off the tops of the stalks when the third bunch of fruit was set. I found the single stalk method gave earlier and larger fruits,

but the four stalk method produced a larger, total weight of fruit to the plant. My 30 plants had 48 quarts of ripe tomatoes, or tomatoes that got ripe, and 36 quarts of green tomatoes. I think Bonnie Best the most suitable variety for my lot.

CELERY.—The celery was planted in a trench about 16 inches wide and 12 inches deep, in two rows, plants four inches each way. The plants were very small and the earth without manure. Consequently I dug celery poorer than I would buy. But I have 150 tiny bunches that come in very useful for soups and salads.

CORN.—The corn was Golden Bantam, Black Mexican and Stowell's Evergreen. It was all sown too late, in rows two feet apart. The plants were left some six, some nine and some twelve inches apart in the rows, and some plants were transplanted. I saw no difference in the results. Where the Golden Bantam was really dwarf, it produced three or four small cobs to the plant, each filled with seeds. But many plants of the Golden Bantam were not dwarf. These got stopped with the cold weather and their large cobs did not fill out and were most of them useless. Very late in the season the Black Mexican and Stowell's Evergreen did produce a few tiny cobs that were beautifully flavored. But Golden Bantam did much the best with my late planting and poor soil.

PLANTING IN SHADE.—I had two kinds of Swiss Chard. The leaves of this, used as greens, are not as good as spinach. And the stalks boiled are not as good as celery boiled. But for me it was the best vegetable on the lot, as it came into use in July and lasted until the middle of October. Even then, pulled up, and placed on end in a box it kept quite fresh for four weeks. At the beginning of the season I used to pick the outside leaves off very carefully. But, later on, I just cut the whole plant off with the shears, and in a week or ten days it was putting up more leaves. It grew as well in partial shade, almost, as in the sun. Carrots, 3 kinds, beets, 2 kinds, parsnips, radishes and lettuce did well enough in partial shade. But turnips, onions, both from sets and from seed, leeks, salsify, and particularly potatoes were very poor on the shaded parts of the lot.

There were also broad Windsor beans, 20 plants of sage from seed and too much cress.

PLANT FEWER KINDS.—From my experience of this year, and keeping in view that greater production for which the vegetable campaign was launched last spring, my intentions are next year to plant half the sunny part of the lot with potatoes, 3 sets to the hill and the hills three feet apart each way; to start Bonnie Best tomatoes, celery, cauliflower, lettuce and radishes as early as March 5th in the hot bed; to use onion sets for early planting and Yellow Danvers for seed, Chantenay Half Long or Oxheart carrots, Egyptian Flat or Globe beets, Hollow Crown parsnips, Golden Bantam corn, Wardwell's Kidney Wax beans, Swiss chard, Swede turnips, and, if possible, a few Hubbard squash. I may plant some American Wonder peas, as a luxury.

TIME TAKEN.—From the first digging on March 31st until I picked the last of the sunflower seeds, turnips and chard on October 22nd, I worked 180 hours on the lot. This is $22\frac{1}{2}$ eight hour days, or one hour every work day during the season. The value of my crop was \$26.60.

EVERY MAN'S DUTY.—In speaking of the past summer's efforts, I have heard many Vacant Lot Gardeners enlarge upon the fact that their minds were soothed by the work. When I came in from my Vacant Lot and in my own garden passed budded lilacs running to a forest of suckers, precious pæonies lost in a jungle of delphiniums and beautiful spreads of climbing roses ablaze with flowers even

then against a background of brown, thrip-riddled leaves, the joys of the Vacant Lot Garden did not soothe my mind. It was only duty.

KEEP A DIARY.—Another favorite statement of the Vacant Lot Gardener is that, by smoking a pipe on the lot of evenings and now and again remembering to take a hoe with him—not that it was necessary, you know, but just to dress the part—he obtained ever so many baskets of all sorts of vegetables for his own large family and for the families of all his relations, not to mention the bushels of this and that that were given to all the neighbors on his street and, of course, paying no attention to the bags and bags (or was it tons?) that the lazy people in the block behind stole from that lot. To enthusiasm of this kind I regret that I cannot treat you. I kept a diary. In it were written down each day what I



Italian children doing their part at Hamilton.

did on that lot and the value of what I picked. Such a diary is a wonderful curb on the flights of the imagination. But I am going on with that same lot next year.

E. E. KILMER: When we were urged to grow and produce more vegetables in Brantford this year, we formed a Thrift League in which the Horticultural Society was largely represented. We had not the same difficulties that our friend Mr. Dockray had, but we had them, more particularly with the sod. Those of you who are familiar with the geology of this country will know that where Brantford is situated there has been great glacial action in the days gone by, so that our soil consists mostly of glacial drift, gravel in some cases, sand in others.

The City Council gave us considerable assistance in the fact that they paid for all the plowing that was done, and every individual receiving a lot was assessed \$1 towards repaying for plowing and fertilizing. However, we had the same

experience that our friend Dockray had and there was very little fertilizing done. The cultivation was principally plowing, some very crude. Those who could not wait used the spade, which is one of the best methods of cultivating your garden if you have any skill in using it. I used it because the fences were so close you could not use a plow. The methods we used were somewhat different from our friend's.

It was enjoyable work. Many a man from Brantford saw the sun rise for the first time in his life when he was wending his way down the street to the lot he was working. Where we could not get large lots, we got small ones. Our committee visited every house in Brantford I think. I represented Ward 5 or one-half of it at least, and I can swear that I visited with the assistance of some of my teachers who were interested in the work, every house there in that half of the ward, and there are 845 houses by actual count. We asked whether they had ever gardened before, what success they had had: if they had never gardened before would they undertake to do so now. We explained the terms on which plowing was done for them and made a record of all those details which it is unnecessary for me to furnish this afternoon.

In order for me to give you a sort of comprehensive idea of the amount of work we did, I have reduced my remarks to a lot of definite size. I am going to assume for the purpose of my remarks that the lot constitutes 50 feet by 50 feet, or 2,500 square feet. From the records of the committee we had under cultivation approximately 3,000 lots. Some men of course cultivated three or four apiece, others only one. Some were adjacent to the house, others at remote distances, some on lots that had never been cultivated for twenty years. We worked early and late. We developed blisters in large numbers. We developed headaches sometimes too, and backaches, but the greatest gift I derived from my year's work was that of perseverance, and I am satisfied that what we will beat the enemy with in this present great struggle is this same perseverance which some of us have developed in this increased garden production of 1917. If I am spared to see the spring of 1918 I am going to be on the land again.

If there is one particular thing that I think will win me a place beside the soldier who has made the supreme sacrifice, in the life to come, it will be because I have obliterated twitch grass. The lot which I was working could not have been more thoroughly impregnated with this pest. I started out to dig it out, to cultivate it so to speak. I was told to keep digging it. I hoed it, chopped it, and spaded it, and began to weary of the work, because every time that the spade went down I landed two plants of twitch grass in place of one. I resolved to use the hand cultivator. I set to work with this instrument and I dug up to a depth of 12 or 15 inches, perhaps 2 sq. yards of this lot. I went on my knees, and I can tell you the prayer that went up to the Almighty is not recorded on the phonograph. I picked it out by the basketful. I carried it away by the wheelbarrowful. However, half of that lot is now free from twitch grass, and if I am spared the next year I am satisfied that the remaining half will be free of it. That is the greatest benefit that I have got from Vacant Lot gardening this year. I would not be afraid to tackle any other job after my experience with that twitch grass. Ultimately I got the land in a condition to plant. I did not plant the variety of stuff that our friend did, but I sowed beets, carrots, parsnips, turnips, lettuce, beans—two varieties, white and wax—potatoes, cabbages, both early and late and red cabbage as well, cucumbers, radishes, squash and corn. I kept a careful record of what those lots produced.

I cultivated two lots of the size above named and I raised \$28.50 of produce from those lots. I paid \$1 for plowing and \$2.50 for seed or plants, and spent a total of \$3.50, so that I had \$25 of a net return from my work, and upon that basis I discovered the fact that I earned from the land a half cent per square foot. I am not going to tell you the amount of time I spent cultivating that land because I am not a lawyer, and I might have considerable difficulty in establishing my veracity, but the time that I spent puts his 22 days decidedly in the shade. I spent more time than that, but I am glad I did so, and I am satisfied of one thing, that is, if this country is going to win the war more people have got to cultivate the land than cultivated it of recent years, they must till it more thoroughly. Now, if I am spared to cultivate that land next year I will get more than \$25 from it. Moreover this year I was led to believe the land was fertilized; it was not. If I am spared next year I am going to see that it is fertilized. I found a great many people who got more last year than I did, some who got less. I had the same difficulty as Mr. Dockray had with the cut-worm. I did not go through the preparation of as many preventives. I was fortunate to fall in with a man who suggested the paper idea to me. I was fortunate in getting information earlier than he did in the destruction of the cabbage moth, too. I used paris green and only grew one variety of corn. I think our friend Dockray will have learned that you can't get much in the shape of cobs on corn that is grown in gravel. One thing that I learned, you can't grow as much corn in an area of ground as you might like to. We had corn on a property on which there were 48 or 50 others working and corn closer than our friend Dockray had and we had success. One theory I am satisfied with, you have got to give corn room. The most profitable of my crops were tomatoes, cabbages and cucumbers. I had really good crops so far as these are concerned. I have some of these in my cellar now which will carry me until the end of this year at least. There is one thing that our societies can do for the benefit of this country, that is to urge increased production.

MR. DOCKRAY: A word of explanation as to how I could work so long on the lot. There is a moving picture theatre next door. Under our by-laws they have to keep above their side door a good light, although the people come out into the lane, and they chose to put an electric light of very strong power there, so that I can work on my lot until 10.30 at night.

DR. BENNETT: A great many have mentioned lack of fertilizer. I believe one of the members has a resolution to the effect that something be done along the line of conserving street sweepings and leaves for this purpose.

Moved by J. A. TAYLOR, St. Thomas, seconded by E. E. KILMER, "That the members of this Horticultural Association invite the co-operation of their local Horticultural Societies in requesting their municipal councils to conserve the sweepings of the streets and leaves." Carried.

A MEMBER: In the City of Ottawa as in other cities, the Boards of Health insist on manure being carted away to a remote part of the city, and then placed at the disposal of our Horticultural Society and Vacant Lot Association, but the cost of transporting the manure from the dump to the gardening areas was so great that our finances could not stand it. We now have a committee delegated to the city council to see if we cannot have manure deposited in different parts of the city, possibly in the areas themselves, so that the lot holders can go and be supplied with the manure.

DR. BENNETT stated that their society this year had saved some 100 loads of leaves, which when they are properly rotted are a splendid fertilizer.

MR. WILSON here remarked that he supposed there were more trees in Toronto than any other city in Canada, that last summer trees were heavily laden with leaves, hundreds of loads fell in the fall and when the rains came on they were packed along the streets in good shape, thousands of loads were drawn away and put into the dump, and the citizens along Huron Street where he lives were paying \$3.50 a load for manure. Leaf mold makes the finest fertilizer for garden plots than can be obtained.

A MEMBER: I think peelings of oranges, lemons, pineapples, and all sorts of vegetable matter which are dumped and carted away should be put in a bag or box of some kind. Allowed to decay and mixed with earth, they make a fine fertilizer.



St. Giles' Home Garden Club's exhibit, Hamilton, Ont.

J. LOCKIE WILSON: In the City of Denver hundreds of thousands of dollars are paid to the city for this garbage. All the city of Toronto would need to handle this would be a separate receptacle for this class of garbage. We have 500,000 people in our city, there would be 100,000 families, and I have estimated that there would be enough of this garbage with the addition of some shorts to feed at least 40,000 hogs annually. Four or five weeks' old hogs could be purchased at \$4 apiece, fed on selected garbage and sold when six months old and weighing 150 lbs. for 15c. a pound, making a total of 6,000,000 pounds of pork for \$900,000. Allowing for expenses and other necessary foods such as shorts, there would still be a large profit to the credit of the municipality. The unbusinesslike methods of many of the city fathers of this country in throwing away hundreds of thousands of dollars every year is simply wasting much valuable material both for fertilizer and food products.

H. J. MOORE: I have listened with a good deal of interest to all that has been said about conservation of manure in the way of leaves and other things. All the garbage that goes from my house is buried in my garden. I make a trench and bury it all; in the fall of the year I open a trench large enough to contain all the garbage that goes from the house all winter. In the spring that is covered up, and instead of it going to the pigs, I grow food there. The superintendent's suggestion that we feed pigs is an excellent one, provided that the garbage is very carefully separated and boiled before fed. I know of one farm where the hogs were fed from the garbage and in some cases disease developed, thus rendering the meat unfit for human consumption; but with a little care I should think considerable feed could be saved for the hogs. There is a company in Niagara Falls who operate right along this line, making a product which is shipped without reserve to the United States through large concerns who handle it in a wholesale way. They have the proper facilities for mixing it with fertilizers. It seems to me that a product that is manufactured on Canadian soil, if it is so much needed, should be retained here and utilized. Let this Association get busy, make a request to the Company to let you have a certain amount of this fertilizer, and so replace a lot of this garbage and leaves and other materials that have been wasted. I spoke to the superintendent of the plant and he told me that if certain bodies would make a request to the directors of the plant, they would consider them and it would probably be possible for each of our societies to get a certain number of tons.

THE INFLUENCE OF SCHOOL GARDENS ON COMMUNITY.

J. A. TAYLOR, B.A., ST. THOMAS.

School gardens concern particularly one of our best assets—the rising generation. There never was a time in the history of the human race when such a premium was placed upon child life as now. It is our children who will have to meet the frightful economic conditions created by this war, and it is on their shoulders as well as ours that the war burden will fall. They are the trustees of posterity, and we should remove every handicap that hinders their physical, mental and moral development. The school garden helps to furnish an environment in which their characters are to develop and grow. Environment forms a large amount of life's course of study, and its enrichment makes noble tastes, refined ideas, elevated thoughts and lofty ideals, and sweetness of soul. A beautiful environment of flowers helps to correct the demoralizing tendencies of war and the battlefield. No one is unconscious of the soothing, soul-inspiring presence of flowers in the sick room and the death chamber. They grow as sweetly and in as great profusion over the grave of the poor as over the last resting place of the rich. They symbolize purity, beauty, innocence, sweetness, modesty, resignation and immortality. They are an imperishable type of evanescence. "To me," says Wordsworth, "the meanest flower that grows contains thoughts that lie too deep for tears." Later in life's journey when uttering regrets that his earlier life was not spent more in contact with nature, he says, "Nothing can bring back the hour of beauty in the grass and glory in the flower." The shrieking shrapnel, the roaring cannon and the bursting shell chant the glorious requiem of Canada's fallen heroes and noble dead. The simple crosses and the beautiful poppies which

grow over their graves proclaim alike the eternal verities for which they died, and whisper accents of rest and immortality. What soul has not had his patriotism quickened, refined, ennobled and inspired as he reads the beautiful and touching poem "In Flanders Fields."

In Flanders fields the poppies grow
Between the crosses, row by row,
That mark the place; and in the sky
The larks, still bravely singing, fly,
Scarce heard amid the guns below.

We are the dead. Short days ago,
We lived, felt dawn, saw sunset glow,
Loved and were loved; and now we lie
In Flanders fields.

Take up our quarrel with the foe!
To you from failing hands we throw,
The torch; be yours to hold it high,
If ye break faith with us who die
We shall not sleep, though poppies grow
In Flanders fields.

The function of the school is to prepare for complete living and the duties of citizenship. It is to give that education which equips one for life's duties, responsibilities and opportunities.

MRS. CADWELL: Nothing has ever given me so much pleasure as seeing the children in the gardens. The chairman of the Windsor School Board and I were given the fund for this purpose. We had 310 children enrolled in these gardens. There has been much said about poor soil. We had that to contend with. The ground had not been plowed for three years. In many cases it was very discouraging and uphill work, but many of them made a very good success of it. I will read you two letters from children that impressed me very much, the first from a little girl of ten:

MY GARDEN FOR 1917.

First there was my seed which I got from the penny packets given me by the Horticultural Society. I then made a small bed of rich earth to sow my seeds in, and, when they came up to nice-sized plants, I planted them in my regular garden which was made while my seed was growing in it. I planted zinnias, asters, snap-dragon, also dahlia roots. They all grew to be very fine plants. I watched them and kept the weeds out by hoeing. They showed a lot of pretty flowers which I sold a great many of. This garden of which I have spoken is my home garden.

I also had a small plot in the reservoir garden. I grew in it vegetables, such as radishes, beets, carrots, onions, beans, tomatoes and turnips; all of which grew very nicely. Some of my vegetables I canned after having been shown the way to do them and took them to the Windsor Fair, and got a first prize of \$3 for 1917.

RUTH THREAPLETON.

The other is from a very little boy.

MY GARDEN.

In the fall of the year I got some sand, manure and leaf-mould. I scattered this over my garden.

Next spring, about May, I dug this in and mixed it up good. In two days I raked it and planted my seeds, getting the rows straight. I planted parsley on the edge, then radishes, lettuce, carrots and beets in the next bed, beans, cabbage, cauliflowers, herbs and tomatoes. After the lettuce was used I planted onions. The radishes and lettuce were the first things ready and in a few weeks everything was coming along fine.

On Saturday I loaded up my little wagon and took it to market, and would come home with a dollar or a dollar and a half. I also sold things during the week. Through the year I realized about \$10 or \$15 besides my prize at the Windsor Fair.

KENNETH THREAPLETON.

Speaking of the children bringing this garden work home, one little boy said to his teacher that he would like some seeds; he got them and took them home; said nothing to his parents, but looked about and the only earth to place them in was the ashpile. He planted his seeds in the ashpile. Later his teacher questioned him, and the garden teacher went to his home. She saw the mother who said he had no ground to put the seeds in, and they found out that the seeds were put in the ashpile. The teacher then enrolled him in one of the gardens. At the end of the season he got a prize, 75 cents. They sent it to him in the form of a cheque, which the parents had framed, the father saying if they cashed it for him the money would be gone, but they could show the framed cheque to their friends.

The Garden School is a great educational and social power for the physical, mental and moral growth of the child. We are just beginning to realize that the greatest asset of our nation is our children, and that every child in Canada has a right to start the race even, without being handicapped. The garden develops in the child a civic pride and love for the beautiful, resulting in a



Sowing seeds in a school garden.

greater respect for the appearance of public property and an improvement of home surroundings, and it also proves a wholesome form of recreation and an opportunity to acquire a knowledge of the phenomena and forces of Nature, the possession of which makes life fuller and richer. Since every home does not provide these pleasures, the school can be a valuable substitute, bringing the child in close contact with the things it loves, at least a portion of the day for the greater number of days during the year when his life is being moulded. If agricultural education is worth while adopting, and we are sure it is, therefore to dignify it and give it its proper force, it should be included in the curriculum with the other studies. Were a kind fairy to suggest that I might have one wish granted, it would be that I would like to see every child given an opportunity to have flowers, birds and animals, a place in which to play, a garden in which to work and something all his own to love.

C. B. HAMILTON: Mrs. Cadwell has covered the ground most fully in regard to the necessity of the schools taking up the question of horticulture or agriculture. As I stated here last year, the Ontario Board of Education altered the

law, eliminating the words "Rural or Village" so that the benefits of the million dollars odd money to be distributed this year and for the succeeding years until 1923 could be devoted to city or town schools as well. Heretofore it had only been given to country schools—rural or village. I followed up that question and we tried to have our school board take hold of the matter. I am a member of what is called here in Toronto "The Home and School Council"—that represents the teachers and the parents trying to get in sympathy with one another, to promote in the home whatever is the most benefit to the child. We have on our School Board two ladies, one of whom is president of this Home and School Board, and is very interested and active in promoting the cause of gardening, manual work, nature study and all of the things tending to develop the child along these lines. She made a motion before the board, that the teachers should have the opportunity of attending the classes held each July in Guelph where they have to obtain certificates before they could receive the fullest benefit from the fund provided. The School Management Committee referred that to the inspector. His report was that it was not desirable. She then made another motion. The drift of it was that if they would encourage the teachers to feel that they could share in this fund by knowing that if they did qualify they had something to work for. They also turned that down. The thrift scheme which has been growing so strongly in Toronto this year had its effect in the schools. The parents taking up the Vacant Lot scheme got the children to do likewise. I was asked to judge in five different schools what the children had grown without any encouragement whatever. In two other schools I was asked to see their gardens, who had the best plots for prizes they had to offer. Whatever may be the outcome of school children's work, unless it is on the curriculum and as a study, and unless the teachers can be interested in that study, I feel nothing can come out of it, and it will just drag along year after year with no advancement, whereas if there was some stimulant which would make children and parents take a greater interest, the work would gain in quality and scope, because the parents are as interested as the children. I have delivered several lectures which were well received, but it was only just explaining things that we all know more or less, but which were totally strange to them. I feel that the Government have made a very great move toward the benefit of the school garden in altering that Act, and it is really too bad if the school boards will not take up the matter energetically and enable their teachers to qualify and thus act as an encouragement to the children.

R. B. WHYTE: All that Mr. Hamilton and Mrs. Cadwell have said, I agree with. It is impossible to overrate the benefit of school gardens. The Ottawa School Board put in operation a scheme which is perfectly feasible. They started in every school in the city a Garden Club, which was limited to 35 members. One teacher in each school has charge of the club and she had the assistance of a member of the Horticultural Society. As a rule, there was one adviser to each group of schools. The schools were visited by the adviser and by the teacher. She gave her time outside of school hours. The lots were limited to 18 by 10 feet. In my case we went around to the pupils and ascertained if they had a chance in the competition. If they did not, we told them so and advised them not to enter. The result is exceedingly satisfying, so much so that the scheme is to be carried on next year. The Board held a meeting a few weeks ago and suggestions were made which we think will help very much, and it is very gratifying to feel the interest that the families took and the tremendous

returns they got from their gardens. In one instance it was quite pathetic to see the mother and the child, who had grown tomatoes which were to be sent over to the husband and brother at the front. The whole secret of the success of the school garden rests with the school board and then on the teacher. Of course Ottawa has so many members to draw upon it is easy to get the expert advice that is necessary.

E. E. KILMER: I want to emphasize one point, the influence of the school gardens as a means of preventing migration from the rural sections to the city. I have gardens in my school this year and I have had school fairs, and I defy any man in our city to be elected to the school board who does not come across to the support of the school garden and also with a little cash. I would like to see a man on our school board who opposes school gardens and school fairs. The school trustees all come around to our fairs and contribute too! Another thing, I do not know of any greater influence to prevent people moving cityward. The one person to whom my sympathy goes out is the woman, and there are so many of them, working laboriously on farms among surroundings that are anything but pleasant. There is no farmer who cannot have his little flower beds, and they add so much to the comfort of the women. I have some idea of the work women do on the farm because I was brought up there myself. The surroundings are barren and desolate, and I can easily conceive why a woman should wish to move to the city where there are parks and beautiful surroundings. I also endorse all that Mr. Taylor said about the cat. I would just like to intimate to Mr. Taylor, if he has any language he would not like to express he might have it written up in Indian. That is one advantage of living in Brantford.

MISS BLACKLOCK: I like justice, and I think you are rather hard on the cat. Puss has her uses, and one of them is, she is a great help to the farmer in keeping down mice. I have a cat, and I would not be without one for anything, just as a scavenger as far as mice are concerned. Mice do more damage on the farm than the ordinary mortal has any idea of. My cat will bring in three or four mice, yes, a dozen, to every bird she catches, and then it is generally a sparrow. She is a discriminating cat. There is not a doubt about it, that the cat has its uses, and I don't think these gentlemen have lived in sufficiently rural districts to appreciate the cat. No farmer will be without two or three of them on his farm, so do not abuse the cat too much.

J. A. WEBBER, Hamilton, here read an invitation from J. L. Brunton, Secretary of the Board of Trade, Hamilton, asking the Ontario Horticultural Society to meet in Hamilton next year, and Mr. Webber added, "I hope that his expectations will be realized and I desire to extend a hearty invitation from the Hamilton Horticultural Society. As we have been meeting here for some years in succession, a change around will be all the better for the members. When we come to the problem of transportation, it is only forty miles from Toronto to Hamilton, and I do not think it would present any obstacles in that direction. It may not be generally known here that Hamilton with its population of 180,000 has the largest tonnage in and out of any other place but Montreal, in the Dominion. Some of our industries there are the greatest on the continent, and outside of horticulture there would be many things that would be of interest to the members. I hope some action will be taken with a view to passing these conventions around.

The Chairman said Mr. Wilson had two telegrams along the same line, one from the Board of Trade, the other from the Mayor of Hamilton, and it was their intention to take this up the next day after the election of officers.

MRS. CADWELL: I was wondering if the Horticultural Societies were not big and broad enough to take up this question of the school garden, and see if we could not have that one little link fixed up and have it put on the curriculum.

DR. BENNETT: It is optional now, but we might make it compulsory. If this nation is going to succeed, Horticulture is going to be the success. We are all of one mind on that.

MRS. CADWELL: If the other teachers are too busy to teach this subject, why not hire one to make the rounds in a number of schools.

LETTER FROM AMERICAN CIVIC ASSOCIATION.

“DEAR MR. WILSON:

“I am in receipt of the programme for the Twelfth Annual Convention of the Ontario Horticultural Association, to occur November 21st and 22nd, in Toronto. I earnestly wish I might be able to be present, at least on one of these days, but inasmuch as it is necessary for me to be in Detroit on both days, in attendance upon the convention of the National Municipal League, of which I am a vice-president, I must deprive myself of the benefit and pleasure of meeting with the earnest and active workers in horticulture and civic advance of Ontario.

“In these days when all of us must think every day and every hour of the necessity for winning the war which is to make the world safe for democracy, and to remove, we hope for ever, the menace of a false civilization and an unfair commercialism as included under the forms of German autoocracy, it is not to be wondered at that we lose sight of certain essential things which are of scarcely less importance than the prosecution of the war.

“I have above quoted President Wilson’s sententious utterance concerning democracy. I now quote another of his utterances of equal prominence. The President has said, ‘*The war must not destroy civic efficiency*,’ and I particularly ask that as the greeting of the American Civic Association to your very important organization in Canada you present these words.

“The men of Canada and the United States who are on the firing line and in the trenches are and must continue to be sustained from home. They have offered themselves fully and completely in our defence. They are the first answer to the plain question before every American, whether living north or south of the Great Lakes, as to whether he would prefer to defend his country against the Huns on this continent or on the continent of Europe.

“But these brave men who represent us, and who as they have gone to France from Canada have given to that great land imperishable renown by reason of their devotion and bravery, are fighting for a principle which it is our solemn duty at home, not only to keep alive, but to keep in efficient operation.

“If, then, we are earnestly and honestly back of the men who are fighting to defend us and our homes, we must maintain to the utmost the ideals of civic efficiency, despite the attractions and the drawings of the service abroad. Our homes must be clean and our streets must be kept so that we are proud of them. Our towns must reflect our ideals of good order and social justice, not only in the home surroundings but in the street furnishings, in the placing and adorning of public buildings, and in everything that will definitely increase the working efficiency of those of us who must produce here in order that our brave soldiers may fight in France.

"In the early days of the war there were not wanting those who thought that all interest in anything but gas bombs, fighting appliances and Red Cross work was disloyal. The suggestion was made that the rose gardens be plowed up, and actually beautiful lawns, helpful and restful to the eye, were plowed up to grow potatoes!

"It has needed the lessons from the trenches in France to convince us of the folly, indeed the hysteria, of this attitude. When our soldiers are off the dreadful duty of the actual firing line it is found they regain poise, efficiency and strength much more rapidly when they come in contact with flowers, pictures and music.

"In the same fashion it is apparent that this is not the time to make less beautiful the surroundings of our homes, to have less pleasing the environs of our cities and towns, but on the contrary that it is the time of all times for these two great countries who are united in the effort to awaken the world from a terrible nightmare to make their own workers, men and women, boys and girls, better, happier, stronger and more definitely efficient by the carrying on at home of everything that will contribute to the great ideals we all hold.

"In a singular way the Ontario Horticultural Association, with its admirable organization and its broad reach, stands in shape, not only to maintain, but advance these high ideals, and I can wish nothing better for the whole land than the rapid extension of its good and great work.

"I note that in your afternoon session of November 21st a space has been allowed for the report of delegates to the American Civic Association's convention, held late in October in St. Louis. There were not, I believe, any delegates present, but we had the honor to read to our important gathering your fine words of greeting. I have thought that perhaps in lieu of this report you might care to read these words to the assembled convention, and to say that the keynote of our own convention was the carrying out of President Wilson's memorable utterance that 'the war must not destroy civic efficiency.'

"Yours truly,

"J. HORACE MCFARLAND,

"President."

J. Lockie Wilson, Ontario Horticultural Association,
Toronto, Ontario.

REPORT OF DELEGATES TO AMERICAN CIVIC ASSOCIATION.

REV. G. W. TEBBS, HAMILTON.

Your delegates to the American Civic Association held at Washington, D.C., on December 13, 14, 15, 1916, were Messrs. Bennett, of Barrie, Rev. G. W. Tebbs, Hamilton, and J. Lockie Wilson, Superintendent of this Association; and all were present at the convention. There is but little doubt that the reason why the United States eventually entered the war was due to the fact that our genial Superintendent presented the Allies' cause with great vigor from the moment we reached American soil to the hour of our return, to every American citizen he met and also in his address before the convention.

The programme was a very excellent one, dealing with the following subjects: Greetings from many Societies related to civic advance, your Superintendent on behalf of this Association conveying your greetings; Schools as Community Centres, the chair being taken by Miss Margaret Woodrow Wilson; Country Planning and the Preservation of National Scenic Possessions, as well as providing for the housing of industrial populations. In the election of officers, J. Lockie Wilson was elected as Vice-President and Rev. G. W. Tebbs a member of the Executive Board of the American Civic Association.

Through the courtesy of the late William B. Howland, who was also a Senator of the United States Congress, your delegates were introduced to Speaker Champ Clark at the Capitol and were privileged to occupy places in his private gallery to witness the opening of the House of Congress and to listen to one of the debates. Your delegates feel the importance of the affiliation of the Ontario Association with the American Civic Association in meeting the foremost leaders of civic advance on the continent, and in the acquisition of information of the utmost value to the members of this Association.

THE PLANNING OF GROUNDS FOR CITY, SUBURBAN AND COUNTRY HOUSES.

H. B. DUNINGTON-GRUBB, TORONTO.

While war days are not the time for the building of houses and the laying out of grounds, one may safely assume that the making of plans for the future and the starting of permanent plantations which will be growing up during this period of waiting is legitimate.

Many of us have pieces of property of one sort or another from the development of which we hope to derive much pleasure upon the conclusion of peace. Now is the time for us to be preparing our plans. All of these properties vary. We cannot wait till the last minute and then copy what somebody else has done. As the property is different from every other, so must the plan be different from every other. Apart from variations in topography, natural features, and orientation, etc., properties may vary as follows:

1. The city lot.
2. The suburban property.
3. The country home.

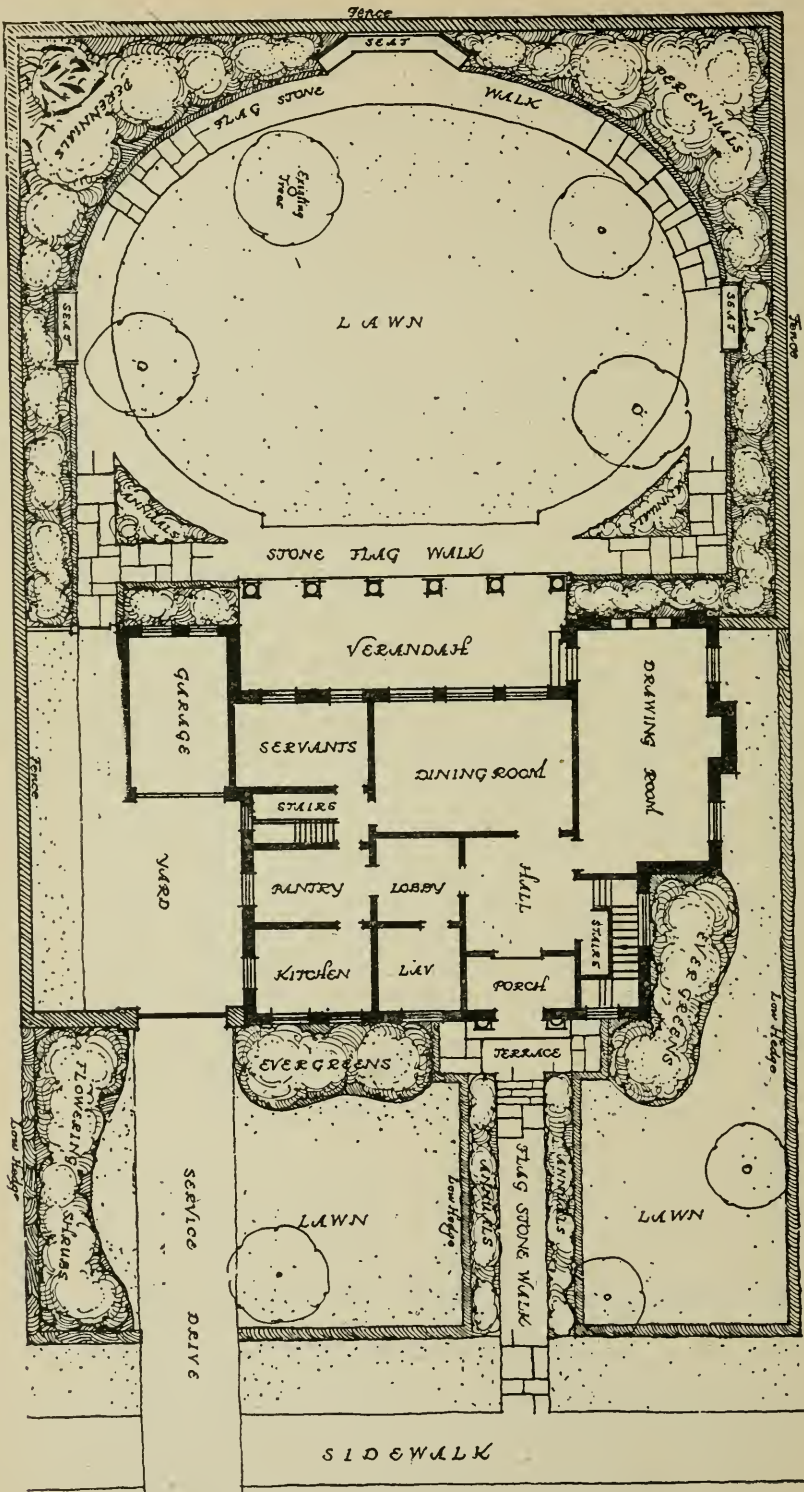
Each one of the above groups may be subdivided as follows:

1. Undeveloped property on which both house and grounds have to be planned.
2. Property on which the house is already built, but grounds are to be laid out.
3. Property on which alterations and additions are required although both house and grounds are already completed.

THE LOCATION OF THE HOUSE.

When arranging for location the following points should be kept in mind:

1. Do not place the house in the middle of the lot, as an extravagant subdivision of the land will result. The property will be cut up into three or four small sections and will appear smaller than it really is. Place the house either to one side or the other according to orientation.



Plan for house and grounds, utilizing existing trees.

2. Arrange kitchens, offices, garage, service entrance, etc., if possible, on the north-east, but always on the side of the house adjacent to the boundary.

3. Arrange the best rooms in such a way as to command the lawn and the best part of the grounds.

4. People using the grounds should be neither overlooked nor overheard by servants in the kitchen.

5. Visitors calling at the house should have a suitable approach from the front door to the gardens without going through the house or pushing between ash barrels.

LAYOUT OF THE GROUNDS.

These should be roughly divided into sections as follows:

1. Entrance area: Driveway, front lawn, etc.
2. Service area: Service court, drying yard, garage, etc.
3. Pleasure grounds: Private lawn, flower gardens, etc.
4. Recreation area: Tennis courts, bowling greens, etc.
5. Domestic grounds: Kitchen garden, fruit garden, etc.

The entrance area should be developed with the following points in view:

1. An easy and obvious approach to the house.
2. A dignified setting for the building.
3. The attractiveness and beauty of the public thoroughfare.

The service area will be planned chiefly for economy of space and convenience.

The pleasure grounds are the most important part of the scheme and should therefore receive most study. The following considerations are amongst the most important:

1. An appearance of breadth and space as seen from the house. This will be usually secured by means of an ample lawn on which plantations are kept chiefly to the boundaries. In spite of this principle the skilful planner will often succeed in increasing the apparent extent of the estate by partial barriers which will suggest extensive grounds beyond.

2. An arrangement of plantations by which unsightly objects will be screened out and the eye directed to features in the landscape of natural beauty, often giving the suggestion that they are part of the property.

3. Flower gardens either formal or informal should never be placed in the middle of a lawn, as they will not only interfere with its restfulness but will also reduce its apparent size. When so placed they invariably look forced and artificial. Flower gardens should always be located in such a way as to give the appearance of falling naturally into place with well defined boundaries. They should usually be given direct connection with the house.

The recreation area should always be set apart if space permits. Tennis courts are always unsightly as the netting obstructs the view. They should be located either beyond or to one side of the pleasure grounds proper.

The kitchen garden should be located in such a way as to be partially screened, but at the same time it should have easy access both from the kitchens and also from the pleasure grounds. Kitchen gardens are usually laid out in rectangular blocks divided by gravel or grass walks. A well defined boundary, such as a hedge, fence or wall is most important.

Greenhouses for cut flowers, fruit, propagating, etc., are usually located either in, or adjacent to, the kitchen garden. Conservatories, on the other hand, should

have direct connection with the best rooms of the house, but should, at the same time, be screened as much as possible from the grounds.

The application of the various principles enumerated above to a specific site is the practice of landscape design. Herein lies its difficulty, its fascinating possibilities and its danger. The amateur who experiences doubt, uncertainty, and difficulty, has taken the first step towards a grasp of his problem. It is partly the experience gained by appreciation of his own and other peoples' mistakes which gradually produces the professional designer. The amateur will usually save himself disappointment by conference with those who have devoted their lives to the study of this art.

A motion of thanks of the convention to Mr. Grubb for his very interesting address was carried.

ASTER GROWING.

G. H. RYERSON, BRANTFORD.

For the sake of convenience I shall divide my remarks into three sections:

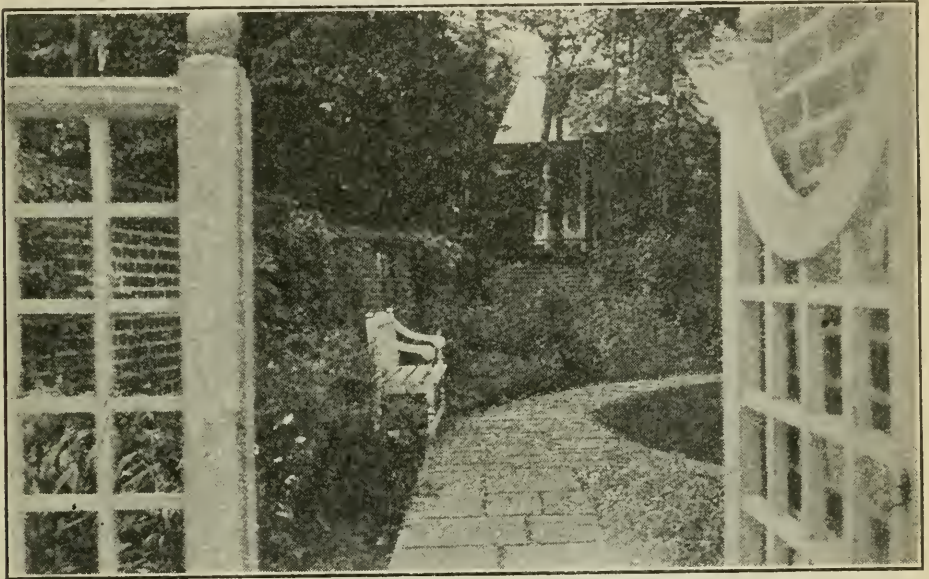
First—The seed.

Second—The seedlings.

Third—The care and attention of your plants after being placed in the garden.

SEED.—Your success as an aster grower will materially depend upon the quality of the seed which you use, and quality being largely a matter of parentage, it necessarily follows that in order to have good bloom your seed must be produced from flowers as near perfect as possible, for without good seed you cannot hope to produce good flowers. No matter how much care and attention you may lavish upon plants from poor seed, you will at best be only able to produce poor flowers. I shall endeavour to point out a method by which each may secure a strain of seed, such as no commercial seed house can furnish you with. It must be evident to all that no seed producer can afford to go over his crop and select seed from only the perfect flowers. He will do this for his own use, in order to keep his stock up to the standard. The labor involved, the small return in seed, and the comparatively low market price of aster seed would render this proceeding a very unprofitable one. For the general trade, therefore, he must harvest his crop as it stands, good, bad, and indifferent. The result is that the seed which you procure through the regular channel will be good, bad, and indifferent, and the flowers produced would also be the same, for like produces like. What you must do is to secure plants from your local market gardener or florist, or seed from a reliable seed house, start your plants in a manner which I shall describe in the second section, and handle them in a manner which will be described in the third section. When your flowers are in full bloom, go over your beds carefully, select several of your very best blooms of each variety, tie a tag to each, giving name of variety and any other remark which you may deem necessary, and break off all flowers not tagged on each plant selected. When your flowers begin to wither, pull your selected plants up, root and all, hang them in a cool, dry place, but free from frost, and there the seed will ripen to the best advantage. During the winter, at any odd, leisure hours, you may clean your seed. Never bring from your storeroom more than one variety into the house at the same time, so as to avoid any possibility of your varieties be-

coming mixed. Break off a ripened flower head, carefully remove the dried petals, which you will find will come away readily, brush the seed from the peduncle into the palm of the hand, place the hands together and rub vigorously with a circular motion, then open the hand containing the seed and blow gently, when you will find that the hair-like appendages which were attached to the seed, as well as light, immature seed, will be blown away, and you will have left in the palm of your hand nothing but plump, mature seed. Place these in a small envelope, a church collection envelope will do, if nothing else is handy, and label properly. You are now ready to start in the aster business in earnest. This method of selecting seed should be followed year by year, and the quality of your flowers will constantly improve.



Side entrance gate in harmony with surroundings.

SEEDLINGS.—There are two methods by which you may secure plants. You may grow them yourself, or you may hand your seed over to a reliable market gardener or florist and let him start them for you. The latter method is by far the most satisfactory, as the price charged is usually very reasonable, and the conditions under which the plants are started are much better than those to be found in the ordinary home. However, if you prefer to start your own seed, it will first be necessary to secure flats or seed boxes about three inches deep and any length or width which you may desire. I would suggest the simplest way to secure flats is to purchase empty finnan haddie boxes from your local grocer. These make ideal flats and are a very convenient size to handle. To ordinary garden soil add one-fourth well rotted manure and enough sand to keep the soil from becoming hard. Press firmly and evenly, make shallow marks two inches apart for the seed rows, sow thinly, planting one variety to a row, and cover the surface evenly with sand to the depth of one-eighth of an inch. Again press firmly and shade with paper until the plants come up. Avoid frequent sprinklings, and do not water late in the day, as this will have a tendency to cause the seedlings to “damp off.” When the seedlings have four leaves you may transplant them into your flats, again keeping the

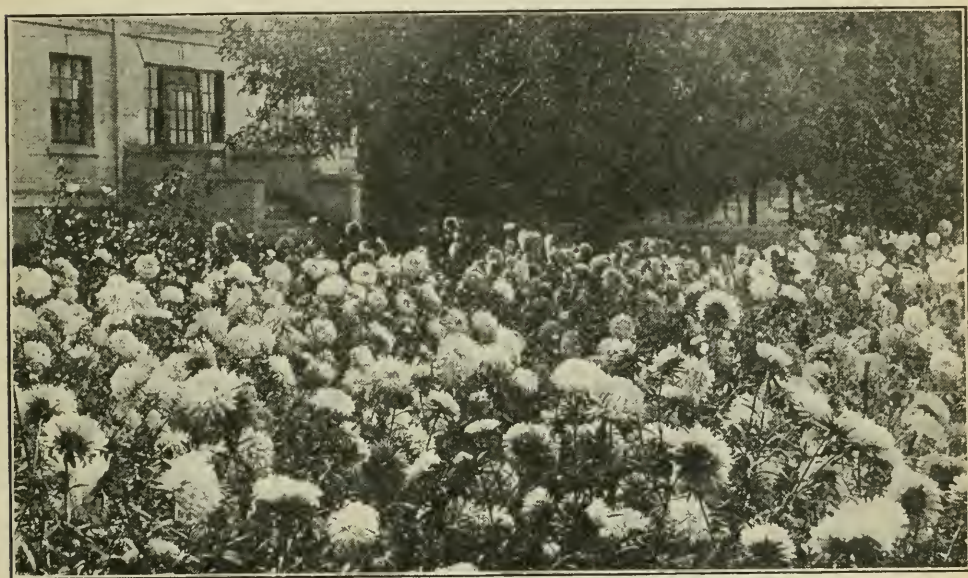
varieties separate. Asters should always be transplanted twice, as this develops a strong root system such as will be necessary to feed vigorous plants. The seedlings having attained a growth of at least three inches they will be large enough to transplant into the garden, but they must be thoroughly hardened off before this is attempted. This may be done by introducing them gradually to the cold, after which several degrees of frost will not harm them. So much for the seedlings.

CARE AND ATTENTION OF PLANTS.—While you are waiting for your seedlings to attain sufficient growth for the final transplanting, you may prepare the outdoor beds. These should be forked over and the well-rotted barnyard manure, which should be spread upon the beds the preceding fall, thoroughly incorporated with the soil, then they should be levelled with a garden rake and all lumps removed from the surface. Your plants should be placed twelve inches apart, in rows eighteen inches apart, which will permit cultivation between the rows. I would advise growing each variety in separate groups, for, if mixed, any slight variations in the blooming season would mean that some flowers would be at their best while others had not yet come into bloom, and still others might be fading. The soil on the surface should be stirred at least once a week to prevent its becoming hard and baked, and also to conserve the moisture. When your plants have attained a height of from six to eight inches and show a tendency to form buds, pinch out the terminal one, also the lateral buds near the ground. This will not only throw the strength into the laterals which you permit to remain upon the plant, but will add height and grace to the plant by keeping it up from the ground. I would advise leaving from six to eight branches on each plant. When these branches begin to throw laterals of their own these must *all* be pinched out. At first this may appear like a laborious task, but you will find if you devote a little time each day, that not only will this task be light, but the pleasure of seeing your plant steadily develop, under your hand, as it were, will fully recompense you for your labor. As soon as the buds are well formed you may give the plants a weekly application of liquid manure. This should not be too strong at first, but as the plants develop you may increase the strength, for asters are gross feeders, and it would almost seem as though they could not get too much of a good thing. Also, I would like to call your attention to the fact that strong growing plants require abundance of water. If these directions are followed out carefully, every flower which you have should be an exhibition bloom. You must not expect too much the first year, but the improvement which several years of close selection will make is simply wonderful. Your once stiff-stemmed, lowly Cinderella of the poor man's garden, will have been transformed to a graceful, long-stemmed queen, equal in grace and beauty, and far surpassing in range of color, her haughty, greenhouse cousin, the chrysanthemum.

A word might be said here with reference to the difficulties which you may experience in combating disease and pests. Stem rot and blight would appear to be the only diseases from which you may expect any serious trouble. When either of these diseases appear the best method of dealing with it is to destroy the plant in order to prevent the disease spreading. Blight makes itself manifest by a streaked appearance in the plants and often one-half of the leaf will be nearly white. Stem rot may be detected by a wilted appearance of the whole plant, which, if you pull up and examine, you will find to be decaying just above the ground. The best preventive which I know for these diseases, for prevention would seem to be the only cure, is to grow healthy, vigorous plants, which, being constitutionally strong, are able to withstand the attacks of these diseases.

The aster is not particularly subject to attacks from garden pests, other than

those which are to be met with any day in the garden. Our old friend the cut-worm will be there early in the season, and the method of dealing with him is too generally known to be mentioned here. The white grub will cause more serious trouble in some localities, and where the ground has been newly broken hand-picking would seem to be the best method of ridding yourself of this pest. His presence may readily be detected by anyone who daily visits their garden. The very appearance of a plant, to one who is in daily touch with them, will tell you of the presence of this enemy at its root. The red-headed flea beetle, by sucking the juice from the young flower stalks, if unchecked, will do more damage to your asters than any other one thing that I know of. A spraying with a solution made from whale oil soap applied to the plants once a week will eliminate them. The only other insect from which you may expect any serious trouble is the Black Beetle. This insect feeds upon the petals of the flowers at a time when they are fully expanded and at



Asters.

Photo. G. H. Ryerson, Brantford.

their best, and, if not checked, they are liable, if they appear in large numbers, to entirely destroy your crop. As soon as they first make their appearance, a method similar to that by which potato bugs are gathered, that is, shaking them off into a pan, may be adopted. If you start before they become too plentiful you will soon be rid of this enemy.

In conclusion, with reference to varieties, as we are considering asters solely from the standpoint of amateurs, we can eliminate all varieties which are useful, chiefly because of their commercial value, that is, early varieties or varieties which bloom at a season when asters are scarce, and, consequently, command a high price on the market. To my way of thinking the varieties of asters which an amateur should grow are limited. The late branching in their various colors certainly cannot be overlooked, and the comet style of aster, such as *Rochesters*, *Cregos* and *Astermums*, for a ragged and fluffy flower, cannot be beaten. However, not all of these are good, and only experience will teach you which are the best. The habit of the branching and the comet are very similar and they may be treated in exactly the

same manner, and you will obtain the same results. You will find that in several years you will have established something very fine in each color of these different varieties and, with the help of nature, you will have added new colors, and you will be made to feel that the strain of asters which you are growing are your very own.

MR. DAVIDSON: As an amateur grower I appreciate that paper very much. The ordinary amateur has more trouble with asters than any other plant we have got. This I know from personal experience. I bought the best seed that money could buy from a standard grower—Vick, of Rochester. I have tried for years to make a success of asters. I have been told never to plant asters on the same ground two years running, and in personal conversation with Mr. Vick was instructed, when not using those plants for commercial purposes, to sow my seed in the ground and then transplant in the usual way afterwards, that even if I sowed them and they got a coat of snow it would not hurt them a particle. Now I tried that and gave as careful handling as I possibly could, and I found the same trouble occurred as when I set them out from the flats. If Mr. Ryerson will tell us how he gets over those troubles I would appreciate it. Even the cut-worm is a difficulty for the amateur to control. I am a great aster lover and am anxious to know how to prevent dry rot and the hard shell grubs which attack asters when they get just nicely into bud.

A MEMBER: I succeeded in growing them for two years, planting in the fall, however. Has Mr. Ryerson had any experience in bringing those on over winter? If you can bring them on on the 1st of July you would have magnificent results, but I would like to know what the secret of it is. I cannot do it every time.

ANOTHER MEMBER: I came across an interesting feature in connection with the growing of asters. I put a row or two in my hot bed for a neighbor, not intending to keep any of them for myself because I devote almost my entire time to the production of food. When the neighbor came to take them away there were more than he wanted, and he asked me to keep the balance. I had no other place but my corn patch. I planted them between the rows of corn. Those asters were trying all the time to look over the top of the rows of corn, having developed long stems and they were very beautiful.

R. B. WHYTE: I do not see any use in going to all the trouble of growing asters in hot beds. I find by growing my asters in the open that I get them in flower when I want them, that is in September. They are a far better plant than if grown in a hothouse or greenhouse.

G. H. RYERSON: In reply to the question how to prevent stem rot, I do not know any remedy, and the only way is the one which I have suggested, to select your seed and thus get a strain of plants that are so vigorous that they will be able to overcome this trouble.

The only method I know in dealing with the white grub worm is as soon as you see indications of it (and you can immediately tell if you are working among your plants each day by their appearance), if you take that grub out you will find it just about an inch below the surface. You can rarely save the plant at the root of which you find it, but by taking it up you prevent its going to another plant. These white grubs, as a rule, are not very plentiful. If you are sowing in soil where there are a great number of white grubs you will see them when you fork your soil over, and the ones which you don't destroy the birds very often find, the robins particularly are fond of the white grub.

In reference to growing asters on the same ground, I know it is generally advocated that asters should be grown on different soil each season. My asters I

have grown for five years on the same soil and last year I had the best that I have ever had. However, it is probably advisable to change.

I have never heard of asters being grown except as an annual. If carefully grown as an annual and trouble taken, you will grow as fine asters as you will want. Why try to make a biennial out of something that is naturally a perennial, when you can get just as good results by following nature and letting nature take its course?

With reference to growing asters between rows of corn, this brought to my mind something I had forgotten to say, that is to warn particularly against growing asters anywhere near a building or a fence. I have found that just as soon as you grow asters in the near proximity to a building or a fence, the reflected heat or the shade which is caused by that building or fence will cause your asters to be spindly, and the one thing you must endeavor to do is to build up not only the stems but the main plant. The main stem of the stalk should be at least two inches in circumference and the asters stand about four feet high when in bloom.

I admit that asters can be grown by not using hot beds, but the trouble with 999 out of 1,000 aster growers is that as long as they grow asters, whether they are six inches high or whether they are four feet high, they are satisfied, but why I suggest always the first transplanting is that by so doing you will add strength, by setting your plant back you will develop a root system which is ultimately going to develop a stronger and a hardier branch system, which will in turn support a hardier and a larger flower.

TROPICAL PLANTS.

WALTER T. ROSS, PICTON.

I am inclined to believe that the impression is prevalent with most lovers of flowers that little can be accomplished, in this cold climate, with the tender growth of the tropics, but the care and culture of tropical plants is much the same as other house plants. Sandy soil and good drainage, is, of course, of much importance; patience is perhaps more necessary, to develop their success, than one must exercise with the more ordinary garden or house plants; an orange tree, for instance, cannot be forced like a cabbage plant; and it is the same with all the citrus trees. Grafting is the quickest and safest way to bring them to flower or fruit; grafted on rough lemon and sour orange stock, with good care, they will bear fruit in three years.

The banana tree will make rapid growth with ordinary care, allowing a good supply of safe fertilizer, keeping it in a temperature of 90 to 95 degrees, and giving plenty of water. The flower bud forms in the bottom of the trunk of the tree, coming up in the shape of a flower stem, which opens into a large blossom, the fruit forming as the stem grows and hanging down beside the tree. The banana, usually, only bears one bunch of fruit, then dies or is cut down, shoots coming up to make a tree for the next season. The pineapple is much the same in both cases, new trees or plants for the next season are propagated from shoots that start from the roots. The insect pests that trouble citrus trees are the white and brown scale. A solution of fir tree oil is the best remedy for them; used either as a spray or to sponge the under side of the leaves where the scale is generally located.

The fig tree is very easily grown and fruited; I have successfully raised a large number of them; it is, I believe, the only tree known that does not show a flower before the fruit forms.

I have had a few copies of my list of plants typewritten and circulated among the members, so you will see I have had quite an experience, and more or less success, for an amateur with no greenhouse, only my garden in the summer and large, well-lighted office windows in the winter months. This list was prepared about fifteen years ago; I have not, now, all the plants listed and probably have some that are not on this list. I have selected a few that I have cultivated with success, some, perhaps, you can hardly call tropical, but they are unusual and you may consider them of interest.

Take, for instance, the trees first mentioned on the list. I have had a variety of very good oranges, lemons, figs and guavas, all of them of much better flavor than those you buy, because they were ripened on the trees before being picked. The lemons, when cut, were so fragrant their perfume filled the room and was as sweet



Boulevard and hedge to hide unsightly buildings, beautified by City of St. Thomas, residents and Horticultural Society. Trees planted are Carolina Poplar. Hedge, *Lonicera Tartaria Rosea* and *Rubra*.

as the orange blossom, while their flavor was delicious when made into lemonade, having little of the sharp acid we are accustomed to in the packed fruit, which is picked green. I wonder what we would think of a Northern Spy apple if picked before it matured on the tree?

I had a Pomelo or grape-fruit tree this summer with about a dozen or more fruit on it, which was thought quite a curiosity; one hears of oranges, lemons, figs and bananas having been fruited in greenhouses, but even there I do not know of a grape-fruit tree being in fruit.

The Paw-paw tree is most interesting, the fruit resembling a small melon. The leaves have the reputation of making tough meat tender. I tested this at one time, buying a couple of pounds of round, tough, steak and wrapping it up in the large leaves of the tree for half an hour before cooking. It certainly lived up to its

reputation in my case; the meat was made tender, with a slight flavor of the paw-paw, which was not at all objectionable. It might be a good thing if our meat merchants cultivated a few of these valuable trees. The *Melia* or Chinese lilac is very satisfactory, its light purple flower filling the air about it with a delicious fragrance.

The climbers come next, the *Stephanotis*, from the West Indies, gave me the most pleasure of any. My plant flowered after a year or two of careful maturing. In its twelfth year it had forty-six bunches of large, white, waxy flowers hanging from its branches or stems, most beautiful to see, and with an unrivalled sweetness of perfume. It stood seven feet high, thrifty and flourishing. I think it the handsomest plant I have ever owned. It grows from a slip and requires watchful care. I started several before I got one to attain such perfection. The "*Allamanda*," and the "*Antignon*" or "*Mountain Rose of Mexico*," are also attractive climbers.

Plants and shrubs are the last mentioned, and as the list is rather a long one I will speak of only a few. The "*Gardenia* or *Cape Jessamine*" takes the lead. I was told that it was very difficult, indeed almost impossible, to get it to flower, unless under certain conditions, so that I need not look for very satisfactory results. Well, I did look for them, and worked for them, so I got two plants to blossom. The flowers were large, white like wax, and emitting a fragrance not unlike the Tuber rose, set in a well shaped bunch of green leaves of beautiful color, shining as though polished. They make an ideal button-hole bouquet. Some may remember reading years ago of the then Colonial Secretary seldom appearing in the House without a "*Gardenia*" in his button-hole.

I have had very good success with tea, coffee and cotton, and, in spices, with cardamom, ginger, pepper, cinnamon; also with tapioca, arrowroot, and camphor. I have also grown successfully peanuts, and sweet potatoes in a sunny patch in my garden. The largest sweet potato I grew weighed a pound. I put a dozen on the scales and they weighed six and a half pounds, which I thought was quite satisfactory.

I really was gratified over my "*White Heather*," from the Highlands of Scotland. It is generally conceded that it is impossible to transplant it. I received some rooted plants from the Highlands and had a large pot of "*Bonnie White Heather*" in full bloom, the Scottish bride's flower, to reward my care.

The *Venus "Fly-Traps"*, known as the "*Fly Catchers*," are most interesting and appear almost human. They are found only in North Carolina. I have seen them catch flies, also spiders, small and great, as if they enjoyed it. The body of the victim is digested by the plant then in a day or two, the traps, which are at the end of the leaves open out ready for more grub, nothing being left of the insect but the wings and legs, which can easily be blown away. I have threatened to teach them to catch mosquitoes, but have not succeeded yet.

I am very much interested in some seed sent to me by the Rev. Captain MacPhail, seed which he gathered on the famous battlefield of "*Vimy Ridge*," the seed is of the Red Poppy, the White Daisy, and the Blue Cornflower. If I can succeed in growing these plants the combination of the "*Red, White and Blue*," from the world renowned "*Ridge*," where the Canadians gained such never-dying glory, will be most interesting.

To go back to my spices and condiments; rather an amusing incident occurred a while ago. A gentleman came into my office to look at my plants; I lifted a plant up to his face and asked him what it smelled like. "I cannot remember," he said, "but it is very familiar; it smells like ice cream." I said, "You have made a good guess: it is a vanilla plant."

LIST OF TROPICAL TREES AND PLANTS.

TREES:

Orange, Otaheite, Satsuma, Jaffa, Ruby, Navel, Kumquat.
 Lemon, Genoa, Villa Franca, American Wonder.
 Lime, Tahiti.
 Pomelo, Aurantium, Improved Pomelo.
 Banana, Cavendish, Ladies' Finger, Martinique.
 Mango, Black.
 Sapodilla (West Indies), Russet fruit, juicy and luscious.
 Loquat (Japan), deliciously flavoured fruit for preserving.
 Pomegranate, old historical fruit.
 Fig, Celestial, Sweet Water, Pagadiere, green Ischia and Brunswick.
 Cinnamon.
 Camphor.
 Apricot.
 Nectarine.
 Persimmon.
 Melia, very fragrant.
 Magnolia, grandiflora.
 Eugenia, Jamboa or Rose Apple.
 Eugenia, Micheii, or Cayenne Cherry.
 Carica, Papaya or Paw-paw tree, makes tough meat tender.
 Bauhinia purpurea, orchid-like flowers.
 Star Apple.
 Sugar Apple.
 Japan Maple, Versicolor.
 Bismarck Apple (from New Zealand).
 Japanese Cedar.
 Albizzia, Woman's Tongue Tree.
 Avocado, Alligator Pear.
 Guavas.

CLIMBERS:

Stephanotis, florilunda, very fragrant.
 Beaumontia, grandiflora (India, fragrant).
 Allamanda, hendersonii.
 Antignon Beptopus, or Mountain Rose of Mexico.
 Schubertia grandiflora, flowers resemble Stephanotis.
 Pereskia, or Lemon Vine.

PLANTS AND SHRUBS:

Azalia, white, pink, crimson.
 Tea.
 Coffee.
 Cotton.
 Tobacco.
 Violet, California and other varieties.
 Pampas Plant (South America).
 Venus Fly Traps, catches flies.
 Camellia.
 Jassinum, Grand Duke of Tuscany.
 Pleroma Splendens.
 Nyctanthes arbor tristis, very fragrant perfume.
 Tea Olive, very fragrant.
 Vanilla Plant, very fragrant.
 Murraya Exotica.
 Acacia, farnesiana, perfume plant.
 Regeria Thrysacflora.
 Crape Myrtles, white, crimson.
 Tabernacmontana coronaria, fragrant.
 Clerodendron, Balfouri.
 Gardenia, Florida, very fragrant.
 Daphne, Odorata, very fragrant.
 Plumiera, the famous frangipana of West Indies, very fragrant.
 Pitcher Plants.
 Cardimon Plant.
 Orchids.
 Tapioca Plant, the Cassiva, South America.
 Arrowroot Plant, Bermuda.

Ginger Plant, West India Islands.
 Raisins.
 Pepper.
 Sweet Potatoes.
 Peanuts.
 Pineapples, smooth Cayenne, Golden Queen.
 Poinciana, Bird of Paradise Flower.
 Brunfelsia, Brazil, uniflora.
 Brunfelsia, West Indies, Americana.
 Poinsettia, the Christmas Flower with scarlet bracts.
 Hedychum coronarium, or Ginger Lily.
 Bryophyllum Calycinum, green flowers.
 Chenille Plant.
 Lemon Verbena.
 Lavender.
 Fraxinella, or Gas Plant.
 White Heather.
 Mushrooms.

MR. DAVIDSON: Did you say you successfully raised the heather out of doors?

W. T. ROSS: I grew it in a bed.

MR. DAVIDSON: Did you not try it out of doors?

W. T. ROSS: It was sent to me from Scotland, cut out with the earth and roots, and I took the lump just as I got it and put it in. I had both white and purple.

MR. DAVIDSON: I brought a plant from Scotland myself. It was grown successfully in the greenhouse but it did not stand our winter. The reason I asked the question was that in New York the claim is made that they are growing it successfully out of doors.

FLOWERS THAT BEST SUIT THE GROUNDS OF NORTHERN ONTARIO.

MRS. LORNE McDougall, HAILEYBURY.

There are two or three bits of advice which should be heeded to accomplish easy, effective gardening.

Choose your flowers for color and size. If you have very little room make a speciality of one kind of flower. You will be surprised at the reputation you will gain.

Study where to buy the best seeds and the finest colors. Never buy mixed seeds. If it is only nasturtiums buy one variety in a package. Any flower becomes distinguished grown in masses, therefore, generally speaking, grow in masses and abundance. The exceptions to this rule make it all the more effective. This is nature's way. There is a large island near Haileybury whose hillsides in the spring are covered with thousands of yellow ladies' slippers. Everywhere as far as you can see they stretch under the black and white of the birches, and later they are followed, in the same riotous prodigality, by the orange lilies. It follows that you avoid narrow borders. A narrow border consisting of single specimens of many flowers is an ugly and confusing sight. Study color effects. Bachelors' buttons and pink phlox drummondii are exquisite grown together against grey rock. Orange zinnias, coral-red snap dragons and blue ageratum are wonderful against a neutral wall. These are the kind of achievements that transform an ordinary garden into an extraordinary—quite within anybody's reach.

There are three well known perennials I should like to see encouraged in Northern Ontario—hollyhocks, close to every house, delphiniums, where the sunlight catches their blue and copper, and masses of phlox, each mass of one color. A

cult might be made of the hollyhocks and each householder urged to plant at least a few. They give the maximum decorative effect at the minimum expenditure of time.

There is so much pioneer work going on, even in the small thriving towns, there is such an unfinished look, there is so much ugliness abroad in the way of burnt trees or lack of trees, unkempt vacant lots and colonies of weeds, that we need the distraction of the showy, daring productions of Dame Nature.



Double Tuberous Begonias.

Our climate encourages rich coloring and unusual coloring. Old rose (delightful in asters), salmon-orange, cerise-rose, these shades all come true to description and rarely sunburn or fade. So do not be afraid to try the pastel colors.

Grow tall, long-stemmed varieties in preference. If in doubt what to choose guide yourself in the catalogues by the height unless you want an edging plant. They suit our soil and conditions.

I give a very simple list of well known flowers with a few comments:

PERENNIALS:

Tulips.—Grow the Darwins, the May-flowering, the Parrots, any late vigorous variety.

Daffodils.—Always grow well.

Narcissi.—Try some of the finer varieties, they keep multiplying. Plant these bulbs in your borders deep enough to stay there undisturbed.

Pansies.—I prefer a yellow self-colored variety (no eye) and the orchid-flowered, but all pansies do splendidly, grown not in shade but in the sun.

Gaillardia.—These will sow themselves year after year if you allow them.

Columbines.—Try growing the long-spurred varieties, once established they are always to be depended upon. Grow your own plants from seed.

Forget-Me-Nots.—Sutton's Royal Blue.

Delphiniums.—I recommend the varieties of Lemoine, Nancy, France. You can also grow fine plants from seed by discarding the disappointing ones.

Pæonies.—You must plant at least a few fine roots, the most beautiful flower I saw last summer was a single pæony, one of Kelway's.

Phlox.—Too much cannot be said in its favor.

Gypsophila.—Invaluable for cutting. Plant a row among the vegetables if you have not room elsewhere.

Hollyhocks.—A magician who transforms the common place and ugly into beauty.

These few perennials are always successful and give a succession of bloom. I could urge the cultivation of others:

Iris—absurdly easy to grow; *Anchusa*—for its unique blue; *Pyrethrums*—so beautiful, grown with forget-me-nots and columbines; *Sweet Williams*—those old favorites; *Astilbe*—charming to pick with your sweet peas or snapdragons—there is a queer pink one that tones in perfectly; Oriental Poppies and Lupines—I envied my neighbor his great purple sprays last June. These are all equally easy of success in your perennial border.

If you have space and time enough sow some Canterbury Bells next spring, and in the fall transplant them to a permanent, thoroughly prepared location where you can leave them undisturbed for a few years until you tire of them. They will keep re-seeding themselves and are very vigorous sturdy growers. The cup and saucer varieties are exquisite; any variety, single or double, will delight you. Try potting one occasionally for the verandah or house. Lavender, Canterbury Bells and a Coral-red Sweet William look well growing together in the border.

As for annuals, of course, in a country where the summer is just long enough to grow them to perfection so that they are still at their prime with the coming of autumn, what a temptation to extravagant planting of them!

Sweet Peas.—Are always my first choice. If your place is small grow them in circles, one color to a clump. Fertilize them with poultry manure, if obtainable, otherwise trench each ring with two or three spadeful of ordinary manure. Start your seeds in pots and transplant at least twelve or fifteen inches apart in holes deep enough to let the root stretch out full length. Restrain yourself in the number of varieties if you must, but grow enough of at least one variety to enjoy the full flavor of it, to be able to pick a large bowl full fresh for the dinner-table, or to watch the sunlight play on a sweep of intensifying color. I would suggest a lavender—Afterglow or Orchid or Bertrand Deal or Wedgewood, a salmon-orange such as Stirling Stentor, Helen Grosvenor, Fiery Cross or Scarlet Emperor, perhaps a crimson like Orion or King Edward Speneer, a rose shade like Rosabelle or John Ingman, a navy-blue (my favorite) like Captain of the Blues, or Lord Nelson or May Farquhar (a bunch of these picked with an odd green trailer is as beautiful as a bunch of violets and very similar), and, of course, a pink like Elfrida Pearson or May Atlee or Hercules or whatever variety appeals to you most. There is a hydrangea shade I always grow, unlike any other, called Thos. Foster, but I

emphasize, there is little beauty in sweet peas in mixture, whether grown or gathered in a hotch-potch. If you only wish to buy one package buy one named variety and grow it in as much abundance as you have room.

Grow *antirrhinums* to match your choice of sweet peas. My favorite is the shade called apricot. Both the tall and intermediate varieties are useful. Orange King, Fire King, Giant Buff, Golden Chamois, the different pinks and yellow, a white, tipped with lavender, indeed there are few varieties not worth cultivating. The antirrhinum is a general utility flower singularly free from insects and disease, and scarcely resenting any kind of ill-treatment in the rush of spring work.

I should then choose *nicotine* to plant, both white and the hybrids, chiefly because of their beauty in a bouquet.

The *sanderæ* I recommend as a pot plant for the verandah, much more symmetrical if the centre is picked out when small and the laterals encouraged.

Then we must have a few purple and flesh colored *asters* at least, of the long-stemmed, late blooming sorts, and one or two colors of *phlox drummondii*, a never failing friend; but again, not by any mischance, a mixture. The aster *Sinensis* or the Southcote Beauty is always lovely even for a careless gardener. I prefer the lavender variety.

There are other things hard to resist, a few Pæony Dahlias, Groff's Gladioli, two or three colors of the sturdy branching stocks that survive the last thing in the garden, several scatterings of the annual gypsophila, blue ageratum for its blending color, a sweep of salmon zinnias, a long row of the great orange or the equally fine scarlet zinnias, so much larger and gloriously colored than you expect, a mass of giant hyacinth-flowered candytuft, and the odor of a red or a white mignonette next to the ageratum. How hard to deny ourselves these things when the spring calls us. And there are still unmentioned, schizanthus, salpiglossis, nemesia, nigella, all so successful with a little extra care, so satisfying to an artistic eye.

I have probably left out the favorite flowers of other gardeners. My neighbor would reproach me with verbenas, another enthusiast complain that I have said nothing of shirley poppies or godetia or dimorphotheca, hybrids of marigolds or of every other flower that flourishes excellently. As for godetia, an ugly flower generally, there are two long trailing varieties, a double pink and a lavender, always an addition to box or border.

So after all, *what to grow* is a question of space, situation, time, labor, self-restraint, and an eye for effect.

And even the cultivation of flowers can be made to help win the war, for the Soldiers' Wives League of Cobalt raised \$500 for their Christmas stockings to the boys in the trenches, out of a Saturday sale of garden flowers donated to them during July and August.

AN AMATEUR'S GARDEN.

REV. G. W. TEBBS, HAMILTON.

(Illustrated by lantern slides.)

A man keeps a garden for one of three reasons: First of all either because he is ashamed of his present surroundings and his neighbor has a good garden, or he takes to it like ducks to water, or else he takes to it because he makes something out of it. The next point is, what is the relationship between the Horticultural

Society and these amateurs? First of all, we ought to be prepared to give pointers to the man who is trying to run his little garden to the best of his ability and light. We as a society should enter into that spirit of co-operation in helping others. Some of you can grow asters; let everybody know how you do it. Those of you who have a fine perennial border, let others know how you got it and share it up amongst your other members. Give pointers, and also plan for the other fellow if he does not know how to lay out his garden. We were all very much interested in the paper given by Mr. Dunnington-Grubb. We have not all lots like that, but we have our little gardens, and those of you who have the experience see to it that you



Deutzia Longifolia.

help those who do not know. For instance, when I came to Canada thirteen years ago I started an asparagus bed. I made it in the trench style the same as we did in the old country. The first winter I was here everything froze up down to the roots. Your experience in the past teaches you what to do in the future.

My joy in the garden is not in specializing so much, but it is so that in the winter time I can enjoy my flowers just as much as I do in the summer, and I guarantee that although I have not got a greenhouse, and I have not the facilities

for the winter time that some have, yet I have my little photograph camera go over the garden in the summer time, and, if I can back up my stories in the winter time with summer pictures, all the better.

When I came to Canada thirteen years ago I had the idea that no one had any ploughs except the farmers out on the prairies, and I was simple enough to begin to spade a back garden of eleven acres. I got about two acres or more done when I found out that people had ploughs.

At first, wanting to get the very best of everything, I used to send to the Old Country for every bit of seed I got, and while everything was so excellent and true to name, the extra expense of the express and duty was so out of proportion to what one could get here in Canada, I had to discontinue it. A friend visited me lately, a missionary, whose home is 980 miles north of Edmonton at the mouth of the Hay River, at the Great Slave Lake. Sutton's, of England, send him every year a supply of seeds. He grows all the hardier vegetables, showing the possibilities for these even so far north in our western country.

This afternoon the difficulties of securing fertilizer were mentioned. Beware of where your fertilizer comes from. The man who is the caretaker of the property I spoke of above obtained some manure from a man whose farm was infested with this bindweed, and he had just manured his tiny piece of garden and the seeds among the manure had grown, and although some of you talked of twitch grass, it is nothing compared to the bindweed. About thirty Irish boys tried year by year with spade and carefully going over it again and again to eradicate it, but it came up just as thickly as if we had not been over it, within a month or two of our going over the ground. I tried covering the ground over with tarred paper, but without success in getting rid of it.

The next view shows the boys putting in Cuthbert raspberry plants. We gathered the next year a very fine lot of berries from this patch.

Here is a little piece of ground illustrating the twitch grass proposition on which I planted a lot of bushes I got from the nurseryman. Two years before the picture was taken of this piece of ground there were a lot of old black currant bushes that had been there for twelve or fourteen years without having been pruned or attended to, and the same with the grape vines. We dug that over thoroughly, picked off the twitch grass and let it lie on the top as best we could, and put peas there. That picture shows you the peas there three weeks after.

Notice the windbreak of lilacs in this garden. We had difficulty with them throwing out their suckers into the garden plot all the time. In order to stop this somebody suggested to put a board down in the ground, edgeways just beneath the surface of the ground, which would prevent the lilac suckers working their way through. It proved quite efficient.

Mention has been made of Golden Bantam Corn. If I remember rightly the first appeared in the seed catalogues some four or five years ago. I sent for some, and, that was the first grown in the town and one of the first in the country. There are two kinds, one was Golden Bantam, the other was Howling Mob.

When showing you a picture of a vegetable garden first of all let me tell you about parsnips. You will read in the paper where people have left them in the ground during the winter and have used them the second year and there have been fatal results from their use. It seems they not only turn wooden and fibrous, but there is also in them very deadly prussic acid, and families have been poisoned from the use of parsnips used in the second year. I had this very fine crop and saved the seed and had a good crop the next year. Whether it is true or not I do not know,

but I was told parsnip seed is no good the second year, you must have fresh seed every year. I tried it the second and third year, but none of it came up.

Here is a little wrinkle that I found effective; where the little striped beetle attacks your squash and marrow, the suggestion was given to me (and I found it effective), to plant moth balls in the same hill with the plants.

We have heard a good deal about good seed. Here are a couple of good cauliflowers. I have always advocated that the best seed to get is the cheapest in the end, but in Orangeville one of the grocers offered me three packets of cauliflower seed for 5 cents. I scattered it in a little vacant part of the garden and then picked out just what plants I needed and put them out between rows of raspberries, and right on from the end of September to the end of November I got a beautiful crop of cauliflower.

I am very fond of the English cucumber. This shows you some of them growing in our greenhouse at Hespeler. You get about 6 seeds for 50 cents, and they are very prolific. I found some of the Guelph people growing these ordinary greenhouse cucumbers on their fences in their gardens. They did it on the advice of the agricultural people at the College, and they were having very good success.

A lilac hedge 300 feet in length in bloom scented the whole of the town. Just one of the ordinary varieties that had evidently been planted many years ago.

A little perennial border, some 50 feet in length, and I obtained it all by going to a dump heap not many miles from my home, and in an ordinary basket I brought a little of one thing and a little of another, and I had sufficient for that border.

Two pictures illustrating that wonderful show of tulips which those of us who have been to Grimsby to see Dr. Clark's garden admire. In this garden of Dr. Clark's there were 80,000 tulips this spring of over 200 named varieties, and these pictures will give you some idea of the magnificent display. Dr. Clark never tires of telling you of the beauties and best varieties, and his experience in growing and perpetuating these wonderful tulips.

A MEMBER: Was Dr. Clark able to preserve his tulips until fall fair last year? He said at our last convention that he would try this.

DR. CLARK: I took some out about the 18th of July which were good for five days. I took some out about the same date in August. They were still fine and good for about three weeks, but I did not consider them show specimens.

MUSHROOM CULTURE.

WILLIAM ALLAN, TORONTO.

I have been asked to speak to-night on the cultivation of bulbs and mushrooms. These are two subjects that take a long time to discuss and go into them thoroughly, so I think it would be advisable to omit the bulbs to-night. You have heard from Mr. Tebbs and other speakers about the growing of bulbs, so I will devote a short time to the cultivation of mushrooms.

Of all crops under the sun we have more failures in mushroom growing than anything else. When you put in peas you have peas; when you put in beans you can see the beans, you know what you are planting; when you sow cauliflower seed you have the seed, but you don't really know whether it is cauliflower, cabbage or kale seed until such time as you see the plants grow. For mushrooms you have nothing but a little brick containing some mycelium not visible to the naked eye. Of all the fascinating things that I know of, and I have been in the horticultural world since

boyhood, I can assure you there is nothing more interesting than the growing of mushrooms, and it is very simple indeed. Why so many fail in it, it is hard to say. Some people are prone to water too freely, others do not give sufficient. Now there are two ways of growing those mushrooms. I have experimented with both kinds. There is one way which takes three weeks to a month to prepare the manure properly. In another way you can prepare the manure in at least seven days, put it into your beds and have thoroughly good success. To prepare the manure in seven days takes a little skill, and you need to be a little careful, but if you do pay a little attention to the manipulation of your manure and get it into proper condition for the receiving of the spawn, you are more than paid for it. What I tell you to-night is my own practical experience. I have grown mushrooms successfully, and, like a good many others, I have had a good many failures, but, by comparing the two, I think the balance is on the right side of the account. I have had more hits than misses. My theory of growing is simple, and I have told it to a great number of people in Toronto, and I will illustrate it to you to-night in a few minutes, showing you what an amateur really can do in the way of growing mushrooms. To grow mushrooms you don't want a big plant, you don't require a lot of skill or a lot of hot water pipes.

One man to whom I gave my experience, from a bed six feet six inches long by two feet three inches wide, cut and sold over forty pounds of mushrooms. At the present time he has got a magnificent display; he followed up the instructions I gave him, to place the manure on the quick system and had splendid success.

I will now go into details of the quick system as briefly as possible. In the first place obtain a load of manure and put it in an open shed, a cellar will do equally as well, but of the two I prefer the open shed. Put it on your floor and spread and turn it several times the first day. The reason that I advocate turning it at least three or four times a day is this: mushrooms are particularly fond of nitrogen. The steam that comes away from the manure when it heats is the very thing you want to preserve, and to do that and be successful with it, you must turn it at least three or four times a day. The turning condenses the steam, cools the manure and this steam is retained. Another way is this: To the quantity of manure mentioned put one-quarter the quantity of pure loam. That helps to retain the steam, and that is converted into nitrogen, the very thing mushrooms require. You turn that for about a week and the manure is ready to put in the beds. When you put the manure in the bed, with the quick system, the bed must not be more than eight inches deep. The reason of that is this: If you put too much manure in, say fifteen inches deep, it has a tendency to heat, and when it heats you may as well not use it, because mushroom spawn will not stand heat at all. By putting it in eight inches deep the manure cannot heat violently and will produce the heat that the mushrooms delight in. Put it in firmly, so that the mycelium when it does start will run freely. I generally put my spawn in when the temperature is about 90, but you must do it on a falling temperature. When you see the mercury falling and it gets to 90 or say 85 or 75 or 70, you can insert your spawn. Put it in half an inch below the level of the manure. The great secret of success with mushrooms is this: Once your bed is in don't be in a hurry to earth it over. It is generally covered with an inch to an inch and a half of soil. Now my contention is this: When you have the spawn up, let it remain from ten to fifteen days before sealing. By sealing at once the heat rises too rapidly, and it has a tendency to run up to 100 or 110. By leaving your bed for ten or perhaps twenty days (I have left it for twenty-one days before sealing over), with a little care you should

have good success. After you have the bed sealed you require to water just to the depth of the soil that you put on the bed.

Another thing to notice is this: If there is any likelihood of your spawn dying out I would recommend you, after spawning, to give the bed a thoroughly good soaking with water the same temperature as the bed itself. I have done that repeatedly and have had magnificent results.

I have been asked repeatedly why I do not always water it when it is so important. The reason is this: If the bed seems moist enough and, on examining the manure, I find that there is lots of the mycelium about, with a little care we will get another crop presently.

Another mistake that people make is this: As soon as they see the little white



House and grounds of Mr. A. B. Ormsby.

threads appearing on the surface of the soil they think they should have mushrooms the next morning, and to hasten the growth they at once put on a lot of water, which is ruinous. Now you want to be patient and wait. From the time that you see the white threads appearing on the surface and the little peas, which are the mushrooms, it takes from eight to ten days for them to develop thoroughly. Another mistake which is often made is having the room or cellar too drafty, the cold strikes the mycelium and with the heat in the manure it is impossible for it to run successfully. When you have your bed opened and the mushrooms appear, I would advise you to cover the bed with a little straw to the depth of three or four inches, watching at the same time that you do not interfere with the soil, say about six inches above the normal level and cover that with any old canvas sheets, blankets or anything in order to retain the warmth and the moisture as well.

You will see that mushrooms, by a little judicious management, given the necessary moisture that they desire, are quite easily grown. I will show you on a few slides what has been done with mushrooms.

This picture represents a bed that was spawned and treated as I have described. Off this same bed we took at least six crops of mushrooms. I have been repeatedly asked if it is necessary to respawn for every crop. Not at all. Once you spawn your bed and the manure is in good condition and you treat and follow the directions successfully, you can, by a little management, procure at least seven or eight crops off the one bed. Last season we started picking mushrooms off a bed similar to this in the month of October and we kept picking successfully right into the month of February.

The next slide represents the third crop of mushrooms which was taken off this bed. I have been asked by several people the best kind of spawn. That is a very important thing. The finest that I have ever tried is Lambert's Pure Culture. It is put up in the United States and can be procured in any florist store down town. I have had more success with it than any other tried. I have sent to Sutton's in England and have had their famous Twentieth Century specimen, but, taking into consideration the expense and the distance it has to come, it is not really worth the trouble when you can get excellent bricks of spawn here.

I have known men who have gone in for mushroom culture and they are quite content to procure a few loads of manure, put it into a box or a corner of the cellar, and then without giving the beds any care they attribute their failure to bad spawn, never taking into consideration that these require a little attention and a little skill. I have, however, had failures myself; once I had two beds made up out of the same pile of manure, and while one bed was most successful the other was a total failure.

When I make a bed I insert the thermometer and make accurate notes every day, and by reference to these notes from time to time I have come to the conclusion that to be successful with mushrooms you must not give them violent heat, but just a little heat, and by turning the manure constantly you retain the steam as before stated.

A MEMBER: What kind of manure do you use?

WM. ALLAN: The finest manure you can get is horse manure.

A MEMBER: What about street scrapings?

WM. ALLAN: There is too much oil in the street sweepings in Toronto.

A MEMBER: Would there be any oil off the asphalt pavement?

WM. ALLAN: Yes.

A MEMBER: In inserting the spawn in the manure do you break it up into little blocks, and do you insert more than one in a place?

WM. ALLAN: You break it up into eight pieces and insert about nine inches apart.

A MEMBER: How long after the first crop can you get another, and how do you manage it?

WM. ALLAN: After you get one crop of mushrooms I would advise you to re-soil the bed. When you pick out a mushroom there is a little dent left in the surface of the soil. Take a little soil in your hand and scatter it over that. Then spawn it again, roll on your canvas and follow out the instructions I have given above until such time as the bed is grown. Under careful cultivation I have had seven or eight crops from one bed.

A MEMBER: Is your bed on the floor or above the floor?

WM. ALLAN: You can have it either way. If you have it above, let it be about four feet above. If you have it on the floor lay your manure on boards. Mushrooms will grow on concrete very nicely, but they will do better by placing boards on the concrete so as to keep that cold chill from striking the bed.

A MEMBER: An earth floor would not require any boards?

WM. ALLAN: No, but it has a tendency to dry your manure out.

An illustrated lecture, by Mr. Frank Yeigh, then followed on "Canada and the Motherland in War Time."

TREASURER'S REPORT.

C. A. HESSON, ST. CATHARINES.

Mr. Hesson called the attention of the Convention to the subject of affiliation fees. One of the members suggested that the Constitution be printed in the report next year to bring this matter forcibly to the attention of the Societies.

Moved by Mr. DAVIDSON, seconded by Mr. EVANS, that the Treasurer's report be adopted and that the directors of this Association be and are hereby empowered to revise and prepare a new constitution and by-laws with rules of order incorporated for the proper guidance of this Association, and that the same be submitted to this convention at its next regular meeting. Carried.

The Treasurer's Report will be found on page 6.



Where England's national flower flourishes.

REPORT AND CONTRIBUTIONS OF THE COMMITTEE ON NAMES AND VARIETIES.

The Committee begs to make the following report and submit for publication the attached contributions from its members:

Your Committee has deemed it wise to follow the precedent of the past two years, namely, to forego the prosecution of several lines of work which it previously undertook. This in some cases is necessary owing to the fact that many of the members of the committee are much busier than usual because of war conditions. For this reason also the Committee has not been able to meet together for consultation as was the custom before the war commenced. It should be stated,

however, that certain members of the Committee have work in hand which it is hoped will be submitted for publication as early as possible.

The members of your committee now reporting are as follows: H. J. Moore, Niagara Falls; F. E. Buck, C.E.F., Ottawa; P. H. Mitchell, Toronto; Prof. W. T. Macoun, C.E.F., Ottawa; Wm. Hunt, O.A.C., Guelph; O. J. Robb, Vineland Station; L. Norman, Galt; J. C. Crombie, St. Thomas.

H. J. MOORE, *Chairman.*

F. E. BUCK, *Secretary.*

DESCRIPTIVE LIST OF HARDY AND SEMI-HARDY PRIMULAS.

H. J. MOORE, QUEEN VICTORIA PARK, NIAGARA FALLS.

Little, if any, systematic experimenting has been done with the hardy and semi-hardy species and varieties of the *Primula* in Canada. Perhaps this is on account of the supposition that few of them are hardy enough to withstand the rigorous winters. Very few are entirely hardy, as disclosed by the test of the following kinds, all of which have been grown for at least two seasons in the Queen Victoria Park. Many beautiful kinds, however, are with a little protection so hardy that they survive the winters practically unharmed, and in spring furnish a display which well repays for any labor devoted to their culture.

Generally speaking, the plants in the following list merit the attention of all who are interested in spring gardening, and for this reason many of the varieties should prove remunerative to florists. As botanical descriptions would be of little use to horticulturists, the subjects are described almost purely from a horticultural standpoint.

1. *Primula Auricula* varieties (The Auricula). There are many beautiful varieties of *P. auricula*, some of them almost hardy. They are divided into classes according to some distinctive flower character, the principal being the grey edged, white edged, green edged, self, and Alpines. In these classes the varieties are named and standardized. Many of the plants survive our winters with a protection of leaves or litter, and are unique for the herbaceous border. If potted in a mixture of one part of loam, leaf soil, rotted cow manure and coarse sand, with a little broken charcoal, and wintered in protected cold frames, the plants make splendid flowering subjects for the cool greenhouse during spring.

2. *Primula cortusoides*. The deep rose colored flowers of this species are borne well above the foliage to a height of fifteen inches. The leaf stalks and undersides of the leaves are hairy. Several flowering stems are produced at the same time. The plant is an excellent and graceful subject for semi-shady nooks in the border where it requires a light sandy soil with plenty of humus. It is hardy with slight protection. The flowering period is from May 15th till July.

3. *Primula cortusoides*, var. *Sieboldii*. The varieties which have originated from *P. cortusoides* are most beautiful subjects for the shady border. They are hardy and require protection only in zero temperatures. A fairly moist light soil is necessary to their welfare. Their flowering period is approximately May 20th until June 30th. (For description of the type and indoor uses see 1916 list.) The variety *Sieboldii* and its hybrids should be grown in every garden.

Queen of Roses, a plant with deep rose pink flowers, Umbellate, about nine flowers to the stem, which reaches a height of twelve inches, several stems being produced. The foliage is of a medium green.

Maiden's Blush. The flowers are white suffused with rose, and twelve inches high.

Sirius. The large white flowers of this variety are from one to one and a half inches in diameter (as are the two forementioned ones). The foliage is of a light green. Cortusoides and its varieties are all excellent for pot culture.

4. *Primula capitata*. A plant with flowers of a deep violet blue, arranged densely in globular heads, which attain a height of about nine inches. The flowering stems are covered with a white powder. The leaves are wrinkled and toothed, and are powdered on the underside. The flowering season is from May till July. A semi-shady fairly dry position is necessary. The plant is better adapted to the rock garden than elsewhere. If grown in a cold frame and flowered in a cool greenhouse, it makes a charming pot plant. The flowers must be shaded from the sun.

5. *Primula denticulata rosea*. This beautiful variety should be generally grown. The flowers are rose purple with a yellow eye. The inflorescences which sometimes contain more than fifty flowers are dense and globular, and are in flower from April 13th till May 26th. The plants are excellent for planting during fall in beds or borders where spring flowers are required. If planted nine inches apart, the bed will be as distinctive as a bed of hyacinths, which at a short distance the flowers resemble. The plants may be substituted for bulbs or be used in conjunction with them. A soil containing much leaf soil is excellent for their culture. The leaves are hairy, are covered with a white powder, and are coarsely wrinkled and toothed. The flowering stems attain a height of nine to twelve inches.

6. *Primula denticulata alba*. A white flowered form of the above similar in all respects except in color of flowers, and of leaves which are a paler green. The plants may be used to furnish a bed of white flowers for spring flowering or be mixed with the variety rosea.

7. *Primula denticulata cashmeriana*. This variety requires somewhat different cultural treatment from the two forementioned ones. It should be planted in a light soil in a somewhat raised position, so that its crowns will be well above water which in spring may collect. Otherwise they will rot. A moderately sunny position is necessary. The plant flowers from April 18th until May 20th. The flowers are light purple with a yellow eye, and about twelve inches high. The undersides of the leaves are covered with a beautiful golden colored dust. The inflorescence is an umbel similar to the other varieties. Not being entirely hardy a protection of litter must during winter be afforded.

8. *Primula Elatior* (The Oxlip). This perfectly hardy plant is a cross between the English primrose, *P. vulgaris*, and the cowslip, *P. officinalis*. The flowers are pale yellow and are horizontal or drooping on their stems. They are at their best from April 15th until May 15th. They reach a height of nine to twelve inches. The petioles of the leaves are somewhat winged. The plants are very useful for planting out in beds or borders during autumn for spring flowering. It is best to afford a light covering after planting. As a carpeting plant for beds of tall bulbous plants, it is good, and should be more generally used. May be propagated by division, or raised from seeds.

9. *Primula frondosa*. A little alpine species with purple flowers. The stems and leaves are covered with a white powder. In height it is only four to six inches. It requires a semi-shady spot, with some protection during winter. It flowers from May 4th till the 26th. The plant is especially adapted to the rock garden.

10. *Primula japonica* varieties (Japanese Primroses). A plant equally desirable for outdoor or indoor culture. (For description see 1916 list.) The following varieties are all hardy and of great value. They are perhaps the best of the genus for associating with aquatic plants, as they are entirely at home along the margins of pools or streams, if planted in positions where the roots are above the water line. In a semi-shady position in the herbaceous border where a deep rich and moist soil pertains, they flower splendidly, and over a considerable period, namely, May 30th until July 15th. The plants are easily raised if the seed is sown as soon as ripe.

Rose Queen.—A variety with handsome rose pink flowers, about eighteen inches high.

Blush Beauty.—The flowers are a delicate blush white.

Splendens.—A plant with large fiery crimson flowers. The tallest variety, reaching a height of twenty-four inches. A most magnificent hardy *Primula*.

11. *Primula officinalis* (The Cowslip). A hardy plant, the flowers of which are pale yellow, more or less drooping from their stems. The height is various, usually from nine to fifteen inches. This species is interesting as being one of the supposed parents of the Oxlip.

12. *Primula pulverulenta*. A half hardy perennial, which has large handsome purple maroon flowers, borne in tiers on long stems, after the manner of *P. japonica*. The leaves are dark green, nine inches long, and are wrinkled and toothed. The species is excellent for border positions, in sheltered localities where it will probably survive with a covering of litter. As a pot plant for greenhouses with intermediate temperatures, it is excellent and its color renders it valuable. In very cold localities it is better to carry the plants over in cold frames than to subject them to the winter with chances of failure.

13. *Primula Veitchii*. A new half hardy perennial species of Chinese origin. The flowers are of a beautiful rose purple color, and are borne in umbels. The several stems reach a height of about twelve inches. It is best to winter the plant in frames. The leaves are hairy and somewhat palmate in shape. A greater percentage of plants will germinate if the seeds are sown as soon as ripe. The flowering period is from May 29th till July 1st.

14. *Primula vulgaris* (Common Primrose). A hardy well known perennial species dear to the Briton's heart. The hardiest of all primroses, it may be used to advantage in many positions. Splendid for naturalizing in the wild garden or woodland, for massing in the herbaceous border, or in the rock garden. It does equally well in a stiff loam as in a light rich soil. It is easily raised from seeds or by division of the root stock. Height of the flowers about three inches.

Primula vulgaris varieties. There are several white and also one or two good blue flowered varieties of *P. vulgaris*, which go under the garden name of *P. acaulis*. In regard to hardiness, uses and other qualities, they are equally as desirable as the species, and require the same treatment. They flower from April 19th till May 28th.

15. *Primula variabilis* (The Polyanthus or Cluster Primroses). The Polyanthus supposed to be a cross between the common primrose (*P. vulgaris*) and the Cowslip (*P. officinalis*) has many splendid varieties. They are all hardy and useful for spring flowering in beds or borders. Whether mixed or planted in separate colors, they are hard to surpass for naturalizing in the wild garden or woodland. For the rock garden they are excellent, and equally so for pot culture in cold frames and cool greenhouses.

The following varieties are standard. In each case the flowers are umbellate and are held well above the foliage, differing in this respect from the primrose proper.

Munstead Giant White. A plant with large white distinctive flowers and deep orange eyes. The flowering stems are very strong, and about nine inches long. The plant flowers from April 15th till May 30th.

Hose in Hose Yellow. The flowers of this charming variety are of a golden yellow with deep orange eyes. Height about nine inches. This is a vigorous variety and excellent for beds and borders.

Munstead Giant Red. The large dark red flowers of this variety with their prominent orange eyes, are very attractive. The flowering stems are about twelve inches in length. A most vigorous plant, and adapted to all the forementioned uses. It flowers from April 30th until June.

Ruby Red. The flowers are of a beautiful ruby red with eyes that are alternately striped with orange and yellow, giving a curious effect. They attain a height of six to nine inches. The flowering period is from April 28th until June 6th. The leaves are of a medium green.

Barr's Orange Yellow. This variety merits attention not only on account of its attractive flowers which are orange yellow with deeper orange eyes, but for the reason it will bear twenty or more flowers to the umbel. It is one of the best. Its height is from nine to twelve inches. The flowering period is from May 2nd until June. The leaves are of a medium green.

Gold Laced. The gold laced varieties are not extremely showy, therefore not so useful as the other varieties. For pot culture or for exhibition purposes, they are interesting. For bedding or naturalizing they are of secondary importance. Their height is from six to nine inches.

Wooler's White. The pure white flowers of this variety have the usual orange eye. The foliage is light green. The flowering period is during May and June. All the Polyanthus varieties may be raised from seeds sown in spring, or as soon as the seed is ripe. They may also be readily propagated by division during early fall.

DARWIN TULIPS—BEST TWENTY-FIVE VARIETIES.

W. T. MACOUN, DOMINION HORTICULTURIST.

The following list of Darwin Tulips prepared especially for the report of the Committee on Names and Varieties of the Ontario Horticultural Association, should, like all lists prepared by the Committee, be discussed by the members and improved if possible. There are so many varieties of Darwin Tulips to select from and there is such a difference in individual taste that it has been difficult to prepare a list that would be likely to prove acceptable to a large proportion of the members. The colors under which the different varieties are grouped are those used by the Tulip Nomenclature Committee of the Royal Horticultural Society in their report in 1915.

Some of the less pleasing shades of color are not represented in the following list. In a larger list they might be.

Scarlet—Vermilion:
Isis.
Whistler.
City of Haarlem.

Crimson Maroon:
King Harold.
Millet.

Cochineal—Red:

Farncombe Sanders.
Prof. Rauwenhof.
Europe.

Cerise:

Pride of Haarlem.

Rose:

Edmee.
Princess Elizabeth.
Baronne de la Tonnaye.

Pale Rose:

Psyche.
Suzon.
Flamingo.

Salmon Pink:

Clara Butt.

Purple—Black:

Zulu.
La Tulipe Noire.

Rosy Purple:

Violet Queen.
Mrs. Potter Palmer.

Lilac:

Melicette.
Rev. H. Ewbank.

Lilac, with a lighter edge:

Electra.

Blush:

Margaret.
Zephyr.

A LIST OF HYBRID PERPETUAL ROSES.

P. H. MITCHELL, TORONTO.

To make a list of twenty-five Hybrid Perpetual Roses of more value as a guide I divide the list into three groups. First, those that in our own garden I would consider the indispensable ten; second, the next ten, being excellent garden roses but not having the outstanding features of the first ten; third, five which I have observed with considerable satisfaction in other gardens and which I have now planted in our own, but as yet they have not shown their flowers.

Further, the first ten are in order of personal preference, the second and third groups being alphabetically arranged.

THE FIRST GROUP:

Snow Queen (Frau Karl Druschki), the best white rose and would possibly be the best rose of all were it not for its lack of fragrance. As a summer and autumn garden or exhibition rose it is unsurpassed. The climbing variety is very satisfactory and has the same immense blooms as its parent.

Hugh Dickson, unquestionably the best red hybrid perpetual; the colour is a scarlet crimson and the rose is best grown as a large bush against a back support. Flowers fairly freely in autumn.

Mrs. John Laing, a fine fragrant rosy pink of large size and splendid form. A fair autumn rose.

Paul Neyron, always a favourite rose; very large, bright pink; excellent habit of growth and very fragrant.

Mrs. R. G. Sharman Crawford, a very pleasing pink rose with splendid growth, making a compact, upright bush. Fragrant and free blooming.

Gloire de Chedane Guinoisseau, one of the newer roses, and while generally considered a shy bloomer, it has done splendidly with me. Extremely large blooms of full form and bright red colour and good growth of plant.

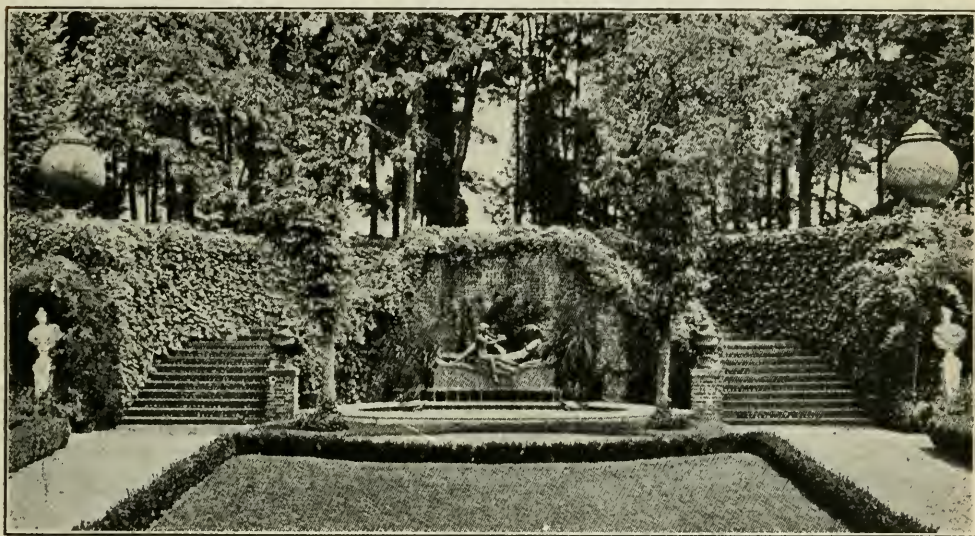
Ulrich Brunner, a prolific summer and autumn bloomer, good colour and form and fragrant.

Coronation, one of the newer roses, of immense size, free blooming, bright flesh pink.

Prince Camille de Rohan, quite the best of the very dark crimson roses.

General Jacqueminot, a brilliant crimson scarlet, one of the very old favourites.

While the above ten are selected for their value as Garden Roses, it is much to their credit that several are among the best Exhibition Roses. For instance, in the National Rose Society, in England, holding the foremost Rose Exhibition in the world, *Snow Queen* or *Frau Karl Druschki* until last year had led the Hybrid Perpetuals and Hybrid Teas for some time both in summer and autumn shows. Mrs. John Laing and Hugh Dickson appear about tenth on the exhibition list of some hundred roses. *Ulrich Brunner*, *Coronation* and *Gloire de Chedane Guinoisseau* all rank in the first quarter of the summer list of Exhibition Roses.



Novel treatment of grounds leading to garden.

THE SECOND GROUP:

Captain Hayward, light crimson in colour, loose petaled, vigorous growth.

Charles Lefebvre, bright crimson, of good form and a good growing rose.

Commandant Felix Faure, an attractive, intense blackish red rose of vigorous growth.

Duke of Edinburgh, a bright red rose of good form, fair in autumn, not very fragrant.

Fisher Holmes, crimson-scarlet of good form.

Her Majesty, bright satiny rose, very large and full.

Magna Charta, rosy pink, free blooming.

Marie Bauman, large vivid red blooms.

Suzanne Marie Rodocanachi, a large globular glowing rose; very vigorous.

Victor Hugo, brilliant crimson scarlet, good form. Plant is rather weak.

THE THIRD GROUP:

Geo. Atends, generally described as a pink Frau Karl Druschki, but with a single rose on the tip of the stem. A fine rose, but not the equal of Druschki.

Clio, vigorous, the pink roses growing in clusters.

Louis Van Houtte, intense maroon crimson colour. Rather weak growth.

Horace Vernet, brilliant red and of an excellent form.

Ards Rover, a climbing Hybrid Perpetual with large crimson blooms.

In concluding the list I would point out that nearly all beginners want to start with American Beauty Roses among their Hybrid Perpetuals. This rose does not bloom satisfactorily out of doors and many on this list so surpass it, even at its best, in colour, form and fragrance, that it is not by any means an essential rose in the garden.

Several rose growers class George Dickson and J. B. Clark as Hybrid Perpetuals although in England they are, perhaps unjustifiably, classed as Hybrid Teas. These should find their place in a list of the first ten.

In connection with this report Mr. Mitchell moved, seconded by Rev. Mr. Scott:

"That the Committee on Names and Varieties be instructed to prepare a score card system for judging at exhibitions of the Horticultural Societies, this work to continue from year to year, and that there be presented at the next annual meeting a report on the judging of roses, sweet peas, paeonies and spring flowering bulbs. That reports on these subjects be considered and discussed at the annual meeting at which they are presented, and, if approved, to be adopted by the Association, and that all Horticultural Societies be required to use these score cards in judging the respective classes at exhibitions and thus secure uniformity." Carried.

MISS BLACKLOCK enquired whether this list could not be had for next year's flower shows.

P. H. MITCHELL: It might be valuable for the exhibitions to have it, but it could not be made authoritative.

MISS YATES: Is there any authorized list of judges recognized by the Association?

DR. BENNETT: I do not think so. This is the Nomenclature Committee. They are experts along the line and could very well act as judges. In our local show we always have Prof. Macoun, and we feel we are on safe ground when we have a man of his stamp. Then we have Dr. Clark act at the Tulip Festival.

P. H. MITCHELL: It would suit me if the committee was authorized to go on with this work which it has already started on, and carry it out, as it is a big piece of work.

HORTICULTURAL SOCIETIES AND THE WAR.

REV. A. H. SCOTT, M.A., very ably presented the case in favour of an increased grant from the Government for the Horticultural Societies, pointing out their rapid growth in membership while of recent years the grant had remained stationary.

SIR WILLIAM HEARST, the Prime Minister and Minister of Agriculture, replied that the request would have very careful consideration on the part of the Government, and went on to express his great interest in the work which the Horticultural Societies were carrying on. Continuing he said:

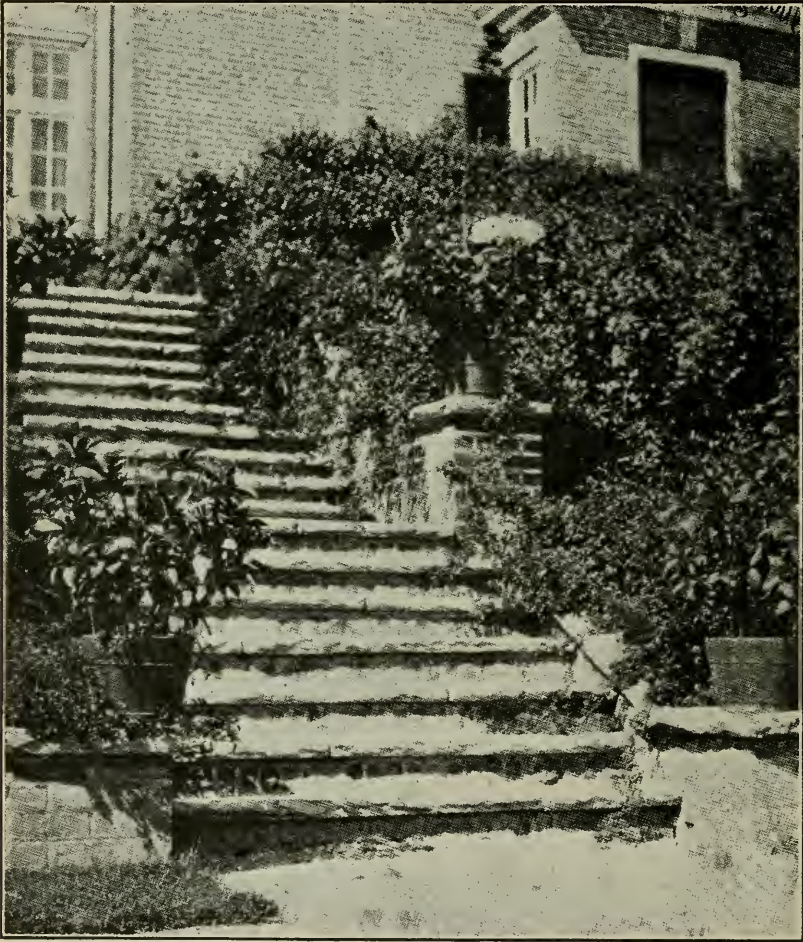
Who can adequately measure the importance of the work that you give your support to and your energy toward the furtherance of? Who can point out the real material advantage of beautiful gardens, well-kept lawns, hedges and shrubberies and of all that helps to beautify the community, the city, the town and the village? Who cannot appreciate the benefit of the changing of conditions that are often offensive to the eye and degrading to the sense of the community into those that are beautiful, uplifting and pleasing? Who can measure fully the material advantage to the city and town in which material changes of this kind are carried on? You often hear of the town or city which is spoken of as a beautiful place to live in, a beautiful place for the retired farmer to make his home in for the last days of his life and for those who are looking for a place of beauty to settle in, and, as a rule, you will find that what classes a city in that particular category is the work such as you ladies and gentlemen are interested in: the beautification of the lawns and parks, the cultivation of flowers, and everything that helps to make it pleasing to the senses and to the eye. I have in my mind a town which a few years ago was looked upon and spoken of as a barren place; an active and progressive community, but a place in which a man only lived because his business was located there. A Parks Committee was appointed in that town, and in conjunction with the Horticultural Society and those devoting their energy in the same line that you are, they acquired a small park, beautified it, obtained from the owners many waste places, and planted flowers and hedges along the streets that were barren before, and to-day, after ten years, that is looked upon as one of the beautiful towns of Ontario. But when you mention the material advantages, to my mind you have not at all summed up the whole story of the good that you do, because I think that work of that kind has a very great effect upon the moral and social life of the community in which it is carried out.

Did you ever see a morally degraded, a coarse man attending a flower show? Did you ever see a degraded man cultivating flowers with his wife or family? On the other hand, can you see anything more beautiful than a labourer, a mechanic, or a professional man, with his wife and family cultivating flowers on the front lawn or vegetables in the back garden, helping to make their town and city a better and a more beautiful place to live in? To my mind you cannot work in a better way for the advance of the moral and social status of the community in which you live.

I want also to extend my thanks to this Association and to the different organizations that are represented here to-day for the assistance and co-operation extended to the Government in our gardening campaign last spring for greater production. The campaign, I believe, had substantial effect, not only in affecting the cost of living, but above all, in providing foodstuffs that can be used by this population in order to export a greater amount to the mother country, which is so badly in need of food. You did a work that was substantial in that respect. Mr. Scott has referred to some of this work, and I know also the work accomplished in many sections of the Province along that line. We appreciate it and we ask for your help for next year, for even greater problems present themselves to us than a year ago.

That brings me to the point that I referred to a moment ago, the question that is before us to-day, that has been before us every day now for almost three and a half years—the war, and how we can bring it to a speedy and successful conclusion, and how we can bring home these war-scarred veterans—that is the day that we mothers and fathers look forward to. It is the day we must strive for

if we are worthy of being called Britons, for, bloody as the last three and a half years may have been, bloody as the days to come may be, we are determined to fight on and on until complete victory is obtained. The German military machine must be broken beyond repair. Germany must learn that it does not pay to make war upon a peaceful world; Germany must learn that the wages of sin is death.



Steps to garden of Miss Baldwin's house, Toronto.

What would happen if the Western line failed? That Western line is the only one that stands between the German and Britain. The Western line only is protecting the women and children of Canada from the atrocities of the Hun. At two of the most crucial engagements of the war it was your Canadian boys who kept back the foe. Who stopped the rush on Calais? It was your own Canadian boys. Are you going to leave them unreinforced, unsustained by every help in our power?

Now there is another important question to consider, and that is foodstuffs. It is one of the most serious. You know as well as I do, the reason of the world's

shortage of foodstuffs. You know practically the only hope of foodstuffs is the North American continent. The lack of tonnage make it impossible to get foodstuffs from the Argentine and Australia, so are we going to supply the necessary food to maintain the morale of the army in the field? We cannot maintain it unless we accomplish three purposes—greater production, greater economy and conservation of food at home. To these we must put every energy.

Those of you from the rural communities know the difficulties last year. The harvest was late, the opportunities for preparing the seed beds for the next spring were not as good, and now the difficulties are greater even than a year ago. The question of help is aggravated instead of lessened. These difficulties are very great. In that respect mistakes have undoubtedly been made by the local military tribunals in taking men off the farm that should not be taken. From that there is an appeal and I have been assured that the greatest liberality would be given in connection with these appeals, and, so far as possible, justice may be done in that respect and in every other respect in the selection of the men that are being taken for overseas at the present time. But no matter what is done, we understand the difficulties. We can only solve them by the active co-operation of the men and women of the towns. We must forget class prejudice and remember that we are Canadians, and that we must work hand in hand and shoulder to shoulder until victory is ours. I know that the burdens we are putting upon the rural sections in this Province, the calls that we are making on farmers, are great. It is very hard to discharge the burdens that we are putting upon them, but when we think of our burdens, my mind goes overseas and I think of the sacrifices they are making for us. Think of the second battle of Ypres, when the fate of the world was in the balance what did your Canadian sons do? Day in and day out, without food and drink, they held the line. They were Britons. They could die but they could not yield. Surely we should be ready to labour and sacrifice for them in order that we can display something of the spirit that they display.

THE CHAIRMAN: I will ask Mr. Scott to reply to this most excellent address from Sir William Hearst, the Premier of the Province.

REV. A. H. SCOTT: If I knew the innermost workings in the minds of the members of this assemblage I am sure that the first expressions from the chair and from the auditory would be those of appreciation of the admirable and the timely presentation of the Prime Minister.

As an Association there comes to our minds just now a sense of reciprocal compliment. We compliment the Premier of this Province on the fact that he is so intimately associated with us in the service for Canada for which this Association and this Convention stand. And we compliment ourselves that we are so closely identified in heart and purpose with the Premier who is at the head of the Department whose interests are bound up with our own. The first minister, like some more of us, has been in close touch with the war. He has made a contribution from his family to the fighting forces of the day. And as not a few of us in this Convention have given one, two, and three of our sons to the cause of honour at the front, there is something that makes us kin when the bullet has done its work, when blood has been shed, and when the soldier's grave speaks to us of the cruelty of war. From all walks of life our representatives have gone overseas. We are thinking of them, we may speak of them here. By the service of warfare our purposes are unified, no matter in what sphere our activities play in our Ontario homeland. May we have strengthening in the thought that ours is a

Cause in the interests of national honour, and that victory will perch upon our banners in God's good time.

The members of this Convention are more than pleased that in the gentleman who has just spoken to us so forcibly we have conjoined the Premiership of the Province of Ontario and the headship of its Department of Agriculture. It has never been so before in my memory. It seems to me a pre-eminently fitting conjunction. Premiership is enhanced by historic dignity through living touch with the first employment of man. If two distinctions in state must be carried by the first minister of the Crown here in our guest of the hour, we have one who is honoured above his fellows. When in other provinces of the Dominion the time comes for the apportionment of portfolios, my expectation is that they will copy the example of the Province of Ontario, and if the exigencies of the state require a Premier to head a dual department my wish would be that the dignified and historic service of the soil should occupy in the estimation of the electorate a place close up to that which is occupied by the chief of the executive of the realm.

We are happy this morning inasmuch as we have the assurance that the Premier is not only tacitly in sympathy with our cause, but is a leader and guide in those enterprises that make for the pleasureableness and productivity of the soil. He has spoken to us forcefully and beautifully. In presenting my argument to the Convention I wished the Premier and the Convention to be convinced that there was no flaw in the reasoning. The first minister's plea is a strong one for greater production to secure victory in the war. The Government's money, increased per annum, as we trust it will be from this time henceforth, added to our own money, which we will try to make larger than it is at present, will certainly secure for us a set of machinery which we will strive to use economically and enterprisingly.

I desire now to move that the very kindest expression from this Convention of the Horticultural Association of the Province of Ontario be extended to the distinguished visitor who has addressed us to-day, and that we wish for him all manner of good things personally, legislatively, and in every way that pertains to the progress and prosperity of our own Province and of Canada.

The motion was seconded by DR. SILCOX, and carried amid applause.

SIR WILLIAM HEARST: I appreciate very much indeed the very kind vote of thanks. Such a vote was not at all due to me. It was not only a pleasure to come here, but it was also a duty to come if I could be of any service in so doing.

GEO. SIMPSON: I wish to emphasize one point that has an important bearing on our appeal to the Government at this time. I apologize for introducing figures into this discussion, but my justification is that they show in a concrete way what we are doing and what the needs of the situation are. I have before me the balance sheet of the Ottawa Horticultural Society for 1917. We received a Government grant of \$535, but we expended upon our work \$2,463. About \$2,000 of our expenditure was contributed by our members and other citizens of Ottawa. This shows that we are trying to do something to help ourselves. Incidentally I may mention that almost \$1,500 were expended in the free distribution of planting material.

That is one point, but it is not the principal one I desire to make. In this time of stress and food shortage, increased production is imperative. Through the instrumentality of the Horticultural Society and with the co-operation of other organizations, the Ottawa Vacant Lot Association was organized and set in motion. In the face of all kinds of difficulties and despite prophecies of disaster, it went

ahead, placed 101 acres under cultivation, and with an expenditure of \$2,400 secured a production of \$26,000. This production and expenditure is independent of and in addition to that of the Horticultural Society, and takes no account of the activities of the hundreds of producers not connected with either organization.

To sum up, of an expenditure of approximately \$5,000, the Government contributed \$535, or about one-tenth.

It is not on the grounds of civic beautification and improvement—important as these things are—that the Ontario Horticultural Societies appeal to the Government at the present time, but because of the urgency of the need of greater production and of the necessity of supporting the efforts of those who are engaged



Boulevard along M. C. R. tracks, St. Thomas, maintained by City and Railroad, and beautified by the Horticultural Society.

in this patriotic work. Horticultural Societies and Vacant Lot Associations all over the country are ready and willing to do this work. We invite the Government to make active use of them.

WM. HARTY: There is a point that was not brought up; the grants to the older societies will be decreased on account of the new legislation by the Government allowing Township Societies to organize with a membership of twenty-five. I am in touch with a number of township councils that are very anxious to get a society organized in their town, and I am pleased and delighted to think that our Government has given that privilege and that these people are to have their societies; but I think that the Government should increase the grant so that the old societies may not suffer.

J. LOCKIE WILSON: The township societies that are being organized and will

continue to be organized down through the years can participate in the grant up to \$800. Every Township Horticultural Association is put in exactly the same position as the Toronto Horticultural Society. What the Government should do, having brought into being this new regulation, is to provide for these new incoming societies and not lessen the grant to the older ones.

MR. DOWNING: I would suggest the appointment of a committee of some of the Toronto members on the San José Scale question. That matter might be left in the hands of our Superintendent, to bring it to the notice of the Department of Agriculture and request that the Act be made to read "must" instead of "shall" in connection with the inspectorship.

J. LOCKIE WILSON: There should be a resolution from this Association.

MR. DOWNING: I would suggest that you appoint a committee of the Toronto members who are close at hand and who would go up and put that resolution before the Government. There is another thing in connection with the Horticultural Societies, and that is the fact that we have heard the several papers dealing with the School Children's branches of our work. I come from the City of Kitchener, and we have taken up there for the last three or four years work among our school children, and we have instituted what we thought was a wise thing, a membership fee of ten cents which we give back to the children in seeds, but we have no recommendation of the department of that branch of our work, and I think it would be a good thing if we could have incorporated in our annual report the amount of work that is done by the school children. I was very pleased yesterday to hear from the school teachers on this subject. I have had the greatest possible difficulty to get any assistance from our school department. Last year we went to the trouble of having our principal put on the board of directors, and he woke up quickly to the fact that it was necessary for a little more to be done by the school teachers to get results. We published a little pamphlet which was supposed to be handed to each of the children, and in only one instance could I find a child who had ever received that pamphlet, and I think there were 2,000 scattered through the city, which goes to show that the teachers were not very much interested.

C. D. BROWN: This work among the school children is one of the most important things that any of the Horticultural Societies could undertake. A few years ago our local Horticultural Society commenced giving seeds to the school children. We had many difficulties, but we had had a good example set for us in the cities of Detroit and Windsor, and we have been following them. The system is to have a large envelope printed with the names and varieties of seeds which you are going to give to the school children. This envelope has also a place for the child's name and address. The envelope is about four inches wide and possibly six inches long. These envelopes are distributed in the class rooms and the teachers undertake to see that each child gets one. The child marks on the envelope what kind of seed he wants and how much, and the amount of money is put into the packet and sealed up and put in the large envelope. These are collected by the teachers and handed to the Horticultural Society. We had this year in our town about 8,000 applications for seed packets. It is only a small town of 8,000 population. The children pay one cent for each packet. There is a lot of work in connection with getting these seed packets out, and it occurs to me that perhaps this Association might standardize a system whereby every local Horticultural Society might get their seed packets. There is no question but that, if we could centralize a source of supply, it would decrease the cost. It was a tre-

mendous undertaking for the local society. There were correspondence and trips to Detroit, and it entailed a lot of work. We got our seed packets from the Eastern States. It seemed unusual to go that far, but the difference in the seed packets as quoted by the Canadian houses and in Massachusetts was very marked. We got our seed packets for sixty cents a thousand, and by ordering 40,000 we had the printing done for fifteen cents a thousand. Now, if all the Horticultural Societies could get their seed packets from one central point, we could get them very much cheaper. These packets were sent to a local seed house, and they filled them for us and charged us for the seed at so much a pound. We were then able to sell these packets for the children at one cent a packet and still lose very little on the cost of the seeds and packets. The work, of course, of the members of the Society was free.

The election of officers resulted as on page 6.

It was moved by MR. WEBBER, of Hamilton, seconded by E. E. KILMER: "That subject to the approval of the executive, the next year's Convention be held in Hamilton, and single fare rates be obtained there." Carried.

DR. BENNETT assured them that the executive would give the matter every consideration, and briefly thanked the members of the Association for all the courteous treatment accorded him in the past.

PARKS AND PLAYGROUNDS.

DR. S. SILCOX, STRATFORD.

These two are related in much the same way as man and child. Man needs parks; the child needs playgrounds. The child who learns to make a wise use of playgrounds will know how to use parks. Of course parks are more than playgrounds. They are recreation areas. As the main feature of a playground is to provide a means of activity for the child, so the main feature of a park should be to provide mental distraction for man. Thus a park should provide areas for all kinds of adult games, and, in addition, such landscape features as trees, flowers, etc., to occupy the mind of the weary business man. A part of a park may furnish a good site for a playground for children, especially in summer. On the whole, therefore, parks must be considered in relation to the adult community and playgrounds to the child community.

THE VALUE OF PLAY.

(a) Play secures the best kind of physical activity because it is pleasureable exercise.

(b) It requires frequent judgment of time, distance, mode of action, etc., and these train the mind.

(c) It develops social spirit, because all play is with groups of two or more children.

(d) In play the child learns the meaning of fairness. Later, he will apply this in work, so that play is the beginning of the development of moral character. Play needs to be supervised in order to secure fairness; otherwise it is likely to be immoral in its effect.

PLAYGROUNDS.

Many people are inclined to look upon the modern playground as a fad taken up by busybodies for their own aggrandisement. But observation of children in urban centres discloses their tendency to congregate in somebody's front or backyard or house or verandah. Young children will not go far; as they get older they range over wider and wider areas. Hence, the playground is an expression of a real need of child life.

Observation has revealed another important fact, namely, that *every playground is already supervised*. The supervisor is usually one of the children, the oldest or most mature boy or girl present. Usually this self-assumed supervision eliminates the kiddies, who are, however, allowed to sit around the outside and watch the seniors play. Unfortunately these supervisors have not the right view of playgrounds as they are naturally selfish. By establishing and supervising playgrounds, adults are simply proposing to improve upon existing conditions. They can secure better located and equipped grounds, and can also secure better supervisors who will see that all the children, old and young, have equal opportunities. Harmful conditions are eliminated and good conditions strengthened by good supervision of children's playgrounds. They have these supervised playgrounds everywhere now; the only question is, "Shall we improve them?"

A good supervisor will, of course, know the value of free play; of equipment; and of organized games, and will secure all of these in proper proportion. Little equipment is required. Boys like to "skin the cat" on some convenient pole, to hang from limbs, and to swing, but good games are always preferred to these individual stunts. A shady playground, without any equipment except a sand pile and a few bars, could be made a most interesting place for children. In fact, it is only in games that the full value of play as already stated is secured.

There have been supervised playgrounds that failed. Little wonder when so little is known about their successful management. There is no doubt that the success of playgrounds depends upon experienced supervisors, and we have not yet had many of these in Canada.

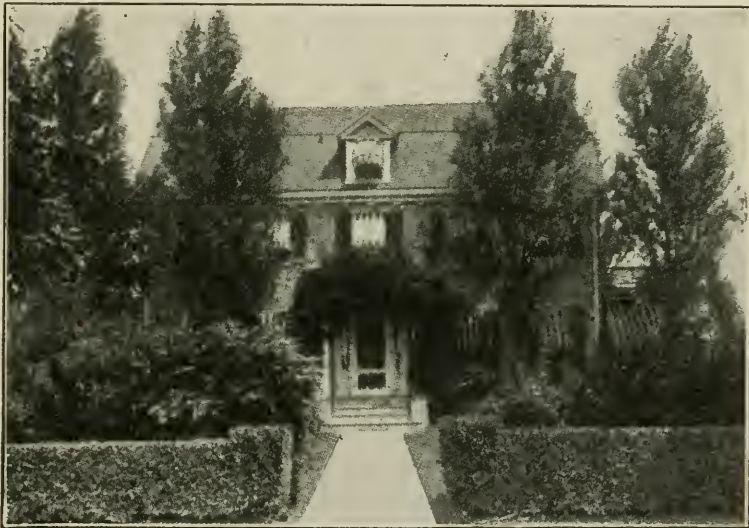
Who should control playgrounds? Undoubtedly, in the interest of education generally and of economy, the School Board should take full charge of playgrounds and finance the whole movement, as part of their regular work. True, they are usually started by private citizens who support them by private contributions. But these privately directed grounds are nearly always on school playgrounds, and the School Boards have to take them over in self-defence because it is impossible for two bodies to use the same plant. The ideal condition is that which obtains in Gary, Indiana, where the playground exercises are part of the day's schedule of school work. The objection of Tammany in New York to the Gary plan does not affect the situation at large, but it is unfortunate for New York City and for the plan that Mayor Mitchell introduced the Gary system so near an election. What has been done in Canada?

Mr. S. H. Armstrong, Director of Recreation, Toronto, has kindly furnished me the following statistics on playgrounds in Canada:

Playgrounds.		Playgrounds.	
Toronto	11	Calgary	1
Ottawa	7	Halifax	7
Montreal	11	St. John	12
Hamilton	3	Truro	2
Peterboro	1	Belleville	2
Winnipeg	32	Brockville	2
Fort William	7		

Stratford had three playgrounds, but war conditions have led to their temporary closing. The bathing beach, controlled by the Park Board is in part a substitute for a playground, but it does not meet the need of the children in all respects.

What is needed in Ontario and in every Province of Canada or in any country? Simply this, that every school should have a playground, open the year round and supervised all the time. We are losing our greatest opportunity to know and to train children by neglecting the school playgrounds. The classroom work can be made much more effective by improving the play conditions and by supervising play activities. The wonder is that this is not yet realized among the great majority of our parents and teachers. We need a campaign of education among teachers and parents.



Lombardy Poplars used in a treatment of grounds.

PARKS.

Children need playgrounds; both children and adults need parks. Why? One speaker, John Dunbar, Assistant Superintendent of Rochester Parks, said before this Association in 1914: "Every wide-awake city nowadays realizes the fact that if it is to finally meet the needs of its corporate life it must develop park areas or its civic life will become stagnant. Parks are as necessary to city development as good public buildings, good streets and good water."

Now, good public buildings tend to more efficient civic government because the officials can do better work and better men will want to become members of the city council. Good streets are sanitary and attract residents in addition to making business more economical. Good water is essential to health. It is evident that parks have all these values. Moreover, they are valuable in connection with all kinds of schools as laboratories for nature study. Stratford Normal School is situated in a park of forty odd acres, with an artificial lake within it. There is more nature study work within half a mile of that school than can be mastered in a year. Moreover, these parks can be made arboreturns like the one at

the Dominion Farm at Ottawa or the Arnold Arboretum at Harvard. Why not keep sheep in our parks as is done in Central Park, New York?

Parks give a wider vision for penned up citizens, improving vision.

They improve morals. Mr. Allen Burns says: "A small park can be expected to be coincident with a decrease of delinquency, within a radius of one-half mile of 28.5 per cent., conditions of the neighborhood in other respects remaining the same. To provide a probation district with adequate play facilities is coincident with a reduction of from 28 to 70 per cent., or 44 per cent. on the average."

Think of Toronto without High Park!

Think of Hamilton without the Gore and Dundurn Park!

Think of London without Queen's Park and Springbank!

Think of Ottawa without Rockliffe and the Driveway!

Think of Vancouver without Stanley Park!

Think of Victoria without Beacon Hill Park!

We have national parks for the Dominion, provincial parks and municipal parks. Our National Parks are eight in number, the largest and most famous, Rocky Mountain Park, containing over 6,000 square miles. John Muir says, "Thousands of tired, nerve-shaken, over-civilized people are beginning to find out that going to the mountains is going home; that wildness is a necessity; and that mountain parks and reservations are useful, not only as fountains of timber and irrigating rivers, but as *fountains of life*." Here then are the reasons for national and provincial parks. Even now with our sparsely settled country, Muskoka is almost too crowded for pleasure. What will it be when our population has doubled and trebled? Then Ontario forest reserves of 20,000 square miles out of 407,262 square miles or about one-twentieth of her area, will begin to be appreciated. Probably twice this area will be reserved by that time.

In addition to these national reserves we have the wood lot of five or ten acres on each farm, and this is not too much. Think of our landscape without these wood lots! Indeed, our country is really too much cleared of these wood lots, especially along our streams, which are flooded disastrously in spring and become dry beds in summer. Often our cities with their shady streets are more pleasant in summer than the country. How repelling some country homes are without a tree or shrub near the house! It is, I believe, generally recognized by experts that our waterways must be reforested in order to restore protection from floods.

It would not seem extravagant to say that one-twentieth to one-tenth of our city areas should be park land; that is, that a city covering 2,000 acres should have 100 to 200 acres of park land, at least. Few cities in Canada have anything like that proportion of park area. Stratford has, but Toronto has not, and never will have now. Queen's Park is pretty much built upon. High Park is not very accessible to most Torontonians. The Esplanade, now under construction will do much, with the Island, to give Toronto a respectable standing in park area. Rosedale Ravine can scarcely rank as park.

We need education in the direction of park expenditures. The Horticultural Association is the existing body that can carry on this propaganda in every centre where there is not a Park Board. A town or city council will not promote parks. A Park Board with its one duty and its powers of levying a half mill rate on the assessment will accomplish something to justify its existence. In proportion as it spends money wisely will the park spirit grow. Our Horticultural

Societies should encourage the formation of Park Boards and the Establishment of Supervised Playgrounds by School Boards.

PROF. CROW: What I shall have to say in the matter of playgrounds I shall treat from the standpoint of planting. Now obviously, a playground is not a place in which you can plant for pictorial effect or beauty, because a playground is made for use, every inch of it, and there is very little opportunity for flower beds, shrubs or other decorative features. To my mind playground planting may be very briefly stated: about the only things which are admissible on playgrounds are shade trees and vines on buildings. A great many of our school buildings that we saw in the previous speaker's excellent collection of pictures can be wonderfully improved by vines. Aside from that, about the only thing which you can have and very necessary it is, is the shade tree. In the shade tree class all of the evergreens, including the pines and spruce, are ruled out because they would not stand in competition with the healthy and numerous sports of the rising generation. The only trees that will stand are those that grow with a straight trunk like elm, oak, maple, etc., and I should think that the best playground tree is the American white elm. It is a highly robust tree that will stand a great deal of tramping, and of course when these trees are planted they are usually big enough to command the respect of the child. The elm tree grows tall and spreads away out high, which gives the maximum of shade and the minimum of obstruction on the ground.

As to shrubbery, flower beds, lawns, etc., in connection with playgrounds, these, if desired, must be located where they can be protected from the children. You may have noticed that in some of the St. Thomas school pictures that we saw a few moments ago, the school yard is divided into two about equal parts. The front part has the lawn, the flower beds, the background is the playground proper. That seems to me to be a very good working scheme, a very good idea indeed for a school ground. It is not necessary to have our school grounds absolutely bare and without ornamental features. If possible lay out a part of it in grass, the children not to be allowed to play on it, but about the only way to accomplish that in connection with school grounds is to have that part of it fenced. It does not need to be a regulation fence. In St. Thomas all they have is a line of gas pipes.

As to shrubbery, you can say the same thing as to flower beds. It is not permissible in a playground because it does not stand the racket. If you have a place for it where it can be protected and allowed to grow, that is alright, but the playground proper is not the place for even attempts at ornamental features.

PARKS.

H. J. MOORE, QUEEN VICTORIA PARK, NIAGARA FALLS.

At an important convention like this there is usually, on account of business matters, too little time allotted to the reading of papers, and much less to the discussion. With this in mind I will be as brief as possible and will but refer to a few important factors wherein we, if not exceedingly careful, make mistakes in the laying out and in the management of our municipal parks—mistakes which always lead to much unnecessary expense and to dissatisfaction with the work when it is done. The following are the factors to which I would refer:

ADVICE. What advice do you get when about to acquire and to lay out your parks? Is it born of experience, and is it of such a nature as will imbue the people of your city with confidence. Remember that any important work that is undertaken will either stand to the credit of those responsible, or as a monument to their folly. The greatest monument to the tact and intelligence of any municipal body is a properly laid out and spacious park. Always seek the advice borne of experience, and demand that the landscape architect (so-called or otherwise) show work that he has done in proof of his ability to advise.

LAYING OUT. The manner of laying out a park will depend largely on its location. If the surroundings are formal as for instance near a railroad station, or in the heart of a town or city, a formal or artificial layout will be proper, and in accord with other work done by man. If, however, a large tract of land has been wisely purchased, it may be laid out informally even if later surrounded by streets, provided that it is of such a size as not to lose its dignity by the



Where the cool fountain plays.

association of that which is artificial. Did it ever strike you that many cities destroy (by building upon) their beautiful natural ravines and park lands which lie all around them, and later spend millions of dollars in providing an artificial substitute for that which is natural?

Along a river or on undulating lands as ravines, which are peculiar to many Canadian towns and cities, the treatment should be entirely informal. Whoever but the most ignorant would ever dream of laying out these God made places in a formal way, and so for all time spoiling their grace and dignity, so much so that they are beyond the redemptive power of human hands. Have you ever seen Parked Boulevards which should have been natural, spoiled by gaudy flower beds and geometric designs, and at considerable expense? I have. I refer to boulevards which are not flanked by houses, streets and sidewalks. These latter should be treated formally.

CHOICE OF SUBJECTS. This important phase of the subject requires careful thought, for in all schemes of beautification a right or wrong choice will make or mar. From our natural schemes, let us leave out all highly colored and gaudy exotics. I have seen the sides of ravines and hills in certain cities daubed with trees and shrubs of various shapes and colors, some of them, even the evergreens, cut to grotesque shapes and these in places where previously infinite harmony existed. Unfortunately the finite mind would not or could not understand.

As a general rule we should use native subjects in our natural parks. When these are impossible to obtain we may substitute the more modest exotics. In our formal parks we may display color and plant exotics freely for this is their place. Why in the past we have used so many exotics in our natural schemes, when native material is so abundant and beautiful, I cannot understand. This practice has done much and unless it is stopped will do much more to untypify our natural parkings, and lower the dignity and the grandeur of the natural environment of our cities. We ask no substitutes for that which is Canadian. Let us, therefore, have a school of Landscape Architects which will recognize in the creation of our parks that informal parkings differ from formal ones, and that to introduce formality, and foreign subjects into informal and natural positions will but outrage the sense of harmony and impair that which was naturally beautiful.

The choice of subjects for special positions is also a very important matter. Sometimes material entirely unsuited to a locality is chosen. For instance, near factories or large railroad stations, trees are planted which will not withstand the smoke and fumes. A careful consideration must be given these matters or failure in our attempt to beautify these oftentimes unsightly places will ensue.

PROF. CROW, of Guelph, here suggested that the Convention hereafter be lengthened out to a three-day session instead of a two-day one, as he said members went back home disappointed because time was not given them to discuss various subjects in which they were interested. Moved by PROF. CROW, seconded by H. J. MOORE, "That in future this Association's convention last for three days instead of two."

E. E. KILMER: The executive for last year discussed this matter for some time before this meeting was arranged for to-day. I have no objection to your having a week's meeting if you like, but there are a number of small societies throughout the country which send representatives here with the idea of getting information, and these people will not come to a three-day convention. It is too expensive. I think the same object could be secured, however, by reducing the programme and you can get more representatives from the class of societies that you want to be represented.

The matter was left to the Executive and Mr. Dockray assured Mr. Crow that they would give the matter their earnest consideration.

REPORT OF COMMITTEE ON A NATIONAL FLOWER FOR CANADA.

The following is the report respecting the steps which have been taken by the Ottawa Horticultural Society to obtain for Canada a National Flower.

During the past summer a small committee of this Society took the matter up with a view to bringing its findings before this Convention. A motion was also

made at the last annual meeting of the Ottawa Society and carried unanimously to the following effect:

"That this Annual Meeting of the Ottawa Horticultural Society respectfully requests the Ontario Horticultural Societies to take such steps as they deem wise to secure for Canada a National Flower."

On the 14th inst. I also received a letter from the Society in which I was requested "to bring the question of adopting a National Flower for Canada before the Convention of the Ontario Horticultural Association, meeting in Toronto next week."

On behalf, therefore, of the Committee and of the new directorate of the Ottawa Society it gives me pleasure to report as follows:

When the original committee was appointed the motion empowered the committee to increase its numbers by inviting others to join it who would be able to assist from a botanical or scientific standpoint, and it was thought that such a committee would then form the central committee to deal with this question of a national flower. Up to the present these gentlemen have not been formally invited to join with the original committee, but several of them have signified their willingness to do so, should this Convention adopt this report. It is also hoped that provincial committees may be formed to consider the question of provincial flowers.

There are two aspects of the question which deserve special mention before details are discussed. The first is that this question of a national flower is one which interests, besides horticultural societies, other bodies of individuals, such as botanical departments of universities, educationalists and students of colleges and schools. It is, therefore, felt that, to a large extent, such would be more easily approached through this central committee, and, with that point in mind, the committee has already written to the Minister of Agriculture to obtain governmental support for the question and to obtain permission to use "The Agricultural Gazette" as one means of getting into touch with educational institutions, etc.

The other aspect which it is desirable to emphasize is that the initial work should be undertaken by the horticultural societies, because they are naturally trustees of the nation's sentiments in such a matter. They should, therefore, take immediate steps to see that the burial grounds in Flanders of Canadians who have fought and died that we might retain the right to possess national sentiments and ideals, are made spots where native flowers shall blossom and remind those who visit those burial grounds of the glories and beauties of the country for which the dead gave up their lives, and that, amongst the burial places of those honored dead, those of our sons shall be suitably clothed and perfumed with simple but enduring tributes from the homeland.

A NATIONAL FLOWER FOR CANADA IS DESIRABLE.

A National Flower for Canada is desirable for many reasons. Amongst such reasons the following are conspicuous:

1. Nearly all other countries have national flowers.
2. A national flower signifies *national* personality and sentiment.
3. As a national emblem it becomes, like a nation's flag, the golden cord binding together historic events and national incidents.
4. It has a definite value similar to the value of a state seal.
5. The selection of such a flower will encourage an increased interest in Canada's wonderful flora.

6. A national flower on the graves of fallen Canadians in Flanders will be as a perpetual banner over our noble dead.

For the purpose of obtaining the national mind as to which flower should be selected for this purpose the following plan is suggested.

A. The presentation of the claims of certain flowers to as many individuals as possible.

(1) Through horticultural societies, educational institutions, etc.

(2) Through the medium of the press.

B. By means of local committees named or appointed by horticultural societies and educational authorities.

C. The will of the people expressed in a majority vote to form the basis of definite action.

(1) Through a central committee at Ottawa.

(2) Which, in turn, will hand over its work to a Minister of the Crown to deal with the matter through legislative enactment.

WHICH FLOWER DO YOU FAVOR AND WHY?

The national flower of a great country like Canada should be:

1. Native to and typical of the Dominion of Canada.
2. An attractive flower and fairly well known.
3. Easy to grow in most localities and types of soil.
4. Easy to propagate.
5. A flower with a blooming season extending over a long season.

HOW THE FOLLOWING FLOWERS COMPARE ON THIS BASIS:

Name of Flower.	Native.	Attractive.	Easily Grown.	Propagation.	Season of bloom.
Columbine	To all parts..	Very	In most soils..	From seed....	Averagely long.
Perennial Aster. ....	.....	As an autumn flower	In all soils....	From seed and root division	Long season.
Trillium.....	To nearly all parts	As a woods flower	In moist loam.	From roots and seed	Rather short.
Iris (Flag).....	To some parts	Very	In all soils....	From root division	Averagely long.
Delphinium	To many parts	Very	In garden soil.	From seed....	"
Peony	Not native...	Very	In rich soil ...	From root division	"

Any other one of the following: Canada lily, Anemone (wind flower), lady's slipper, goat's beard (*spiraea*), violet, twin flower (*linnaca*).

I prefer the
(Name your choice.)

THE COLUMBINE.

Botanical Name: *Aquilegia*, pronounced, Ak-wil-ee-ji-a.

Crowfoot family. Near relatives, the buttercup, hepatica, larkspur. Canadian species, *Aquilegia canadensis* and three varieties of the same.

Distribution: Native to rocky places and open woods throughout Canada, widely distributed.

Adaptability: Can be adapted with success to nearly all soils and localities. Does well under garden cultivation. Easily raised from seed and the young plants can be transplanted with success. Many hybrid varieties resulting from crossing native and European species are now in cultivation. Colors many and beautiful. Season of bloom, May to July.

Interesting Notes from its History: The name columbine is supposed to be derived from the Latin *columba*, a dove, owing to the fact that a detached petal with the attached sepals resembles a dove with expanded wings. The name *aquilegia*, on the other hand, is traced by some to *aquila*, the eagle, by others to *aguilegus*, water holder.

The columbine was used in heraldic devices as far back as 1565. A beautiful yellow variety from California (*chrysantha*) and another blue and white variety from Sibirica (*glandulosa*) have been used to produce many beautiful hybrid varieties of modern introduction.

ASTER—MICHAELMAS DAISY.

Botanical Name: Aster.

Compositæ family. Near relatives, China asters, sunflowers, chrysanthemums.

Canadian Species: Many of the best of the genus.

Distribution: Widely distributed over Canada from coast to coast.

Adaptability: Will grow in almost all types of soil and in most localities. Easily raised from seed or increased by division of the root. In flower during September and October.

Interesting Notes from its History: The Michaelmas daisy or Starwort is the real aster. It is native to the North American continent, although there are species which are native to Europe. The annual flower, known as the China aster, has to a large extent overshadowed the native and true aster, but Canadian woods would look altogether different in the autumn were the beautiful colors of the Michaelmas daisies missing. Although seen at their best in October some varieties commence to bloom in August and the genus last in bloom until November. They greatly improve in habit under garden cultivation, and are amongst the best of the hardy perennials giving autumn bloom.

THE IRIS—FLAG—FLEUR-DE-LIS.

Botanical Name: Iris.

Iris family.

Species Native to Canada: Versicolor, setosa or canadensis, lacustris.

Distribution: Southern parts of Canada from coast to coast.

Adaptability: Can be grown in almost any soil or locality and the modern hybrid varieties will succeed under almost any conditions. One of the most adaptable plants grown. Does well in town gardens. Propagated by division of the roots or offsets. Easily transplanted. Season of bloom extends from April till July.

Interesting Notes from its History: Iris (Greek Rainbow) is widely distributed over the earth. It is a very old garden plant and occupies a prominent place in literature. There are about 176 species of irises known to botanists. There is a great diversity of color amongst them owing to their diversity of origin. The types

are also very different. Japanese irises do not bloom till all other varieties are some weeks past. There are about twenty species of bulbous iris, notable amongst them being the English, Dutch and Spanish.

Orris root is manufactured from the variety *florentina*, the Florence Iris introduced into Britain in 1596.

THE TRILLIUM OR WAKE ROBIN.

Botanical Name: Trillium, pronounced tril-li-um.

Lily family. Near relatives, lily, lily of the valley, Dog's tooth violet.

Canadian Species: *Grandiflorum*, white, *erectum*, reddish brown, and *undulatum*, the painted trillium, white and purple stripes.



Geranium.

Distribution: Native to cool, damp woods. Prefers fairly rich, moist, cool soil and partial shade, but will succeed in open borders and in the partial shade of buildings. More successfully propagated by means of young seedlings, or mature plants may be transplanted from the woods. Flowers in early spring, generally April and May.

Interesting Notes from its History: The trillium is native to Canada and probably has the same characteristics to-day as it had when the red man was the only human being to walk through the glorious carpets of white which a colony of trillium grandiflorum formed in the early days of spring. Rich woods in the southern parts of the Dominion abound in such colonies. The name comes from *tres*, three, all parts of the flower being in symmetrical threes.

The flower has not been used in the work of plant breeding, although plants brought from the woods and well cared for will produce larger flowers than any to be found in the wild state.

There are twelve species native to North America and a few native to Asia.

DELPHINIUM—LARKSPUR.

Botanical Name: Delphinium, pronounced del-fin-i-um.

Crowfoot family. Near relatives, the columbine, hepatica, buttercup.

Canadian Species: Delphinium exaltatum, Penardi and others.

Distribution: Many parts of southern Canada from coast to coast.

Adaptability: Prefers a good rich garden loam, but does well under many conditions. Is one of the hardiest of handsome perennials and the annual forms succeed in all parts of the country. Colors are mostly in shades and tints of blue, although the annual forms are to be had in several other colors. Easily raised from seed or seedling plants. Season of bloom June and July.

Interesting Notes from its History: The name in the Greek is *Delphinon*, Larkspur, so called from the spur formation of calyx and petals. Botanists trace it also to *delphin*, a dolphin, from the supposed likeness of the spur to a dolphin's head. Other common names for the Delphinium, not now in use, are Lark's heels. Lark's claw and Lark's toes. Shakespeare used the former.

The annual varieties are generally claimed as British productions, being derived from the two species *ajacis* and *consolida*. There are about four species native to Canada and four introduced species also found growing wild.

The perennial Larkspur (delphinium) is from several Siberian species, an Italian species and the hybrid species *formosum*. Delphiniums are very valuable border plants and many glorious hybrid varieties are often the pride of the border in mid-summer.

THE PÆONY.

Botanical Name: Pæony, pronounced pe-o-ne.

Crowfoot family. Near relatives, the columbine, buttercup, larkspur.

Distribution: Although not native the pæony is grown in nearly all parts of Canada.

Adaptability: Can be grown with success in nearly all parts of the Dominion. Succeeds best in a deep, rich and rather moist loam. Needs a liberal supply of water at all times. Plants are propagated by division of the roots. Flowers produced during May and June.

Interesting Notes from its History: The pæonies are natives of Europe and Asia. Pæonies were introduced into Britain in 1548. They are now the most noted of all border plants. Vigorous in growth, hardy in constitution and bearing flowers in great abundance they hold a place unsurpassed by any rivals.

The name is derived from Pæon, a physician. Peony and piney are older names for pæony. Pæony moutan is the tree form from China. P. Brownii is the only form native to North America. There are altogether about ten species and varieties by the hundred.

LIST OF FLOWERS USED AS NATIONAL OR STATE FLOWERS.

Flower.	Country.	Flower.	Country.
Rose.....	England.	Moccasin Flower.....	Minnesota.
Thistle.....	Scotland.	Magnolia.....	Mississippi.
Shamrock.....	Ireland.	Bitter Root.....	Montana.
Blue Flag or Iris.....	France.	Goldenrod.....	Nebraska.
Saguara or Giant Cactus.....	Arizona.	Sagebrush.....	Nevada.
Apple Blossom.....	Arkansas.	Cactus.....	New Mexico.
Golden Poppy.....	California.	Rose.....	New York.
Blue Columbine.....	Colorado.	Daisy.....	North Carolina.
Mountain Laurel.....	Connecticut.	Wild Prairie Rose.....	North Dakota.
Peach Blossom.....	Delaware.	Scarlet Carnation.....	Ohio.
Orange Blossom.....	Florida.	Mistletoe.....	Oklahoma.
Cherokee Rose.....	Georgia.	Oregon Grape.....	Oregon.
Syringa.....	Idaho.	Violet.....	Rhode Island.
Violet.....	Illinois.	Pasque Flower.....	South Dakota.
Carnation.....	Indiana.	Bluebonnet.....	Texas.
Wild Rose.....	Iowa.	Sego Lily.....	Utah.
Sunflower.....	Kansas.	Red Clover.....	Vermont.
Trumpet Vine.....	Kentucky.	Rhododendron.....	Washington.
Magnolia.....	Louisiana.	Rhododendron.....	West Virginia.
Pine Cone and Tassel.....	Maine.	Violet.....	Wisconsin.
Apple Blossom.....	Michigan.	Indian Paintbrush.....	Wyoming.

Twenty-five of these flowers were declared state flowers by legislative enactment, while ten were made so by common consent, and seven others by choice of the school children.

This report is signed by:

F. E. BUCK, Experimental Farm, Ottawa, Chairman of the Committee.

J. B. SPENCER, Chief of the Publications Branch, Ottawa, Corresponding Secretary of the Committee.

GEO. SIMPSON, Ottawa, President of the Ottawa Horticultural Society.

Moved by F. E. BUCK, seconded by T. D. DOCKRAY, Toronto, "That this report be adopted by this Convention as the basis of action to obtain for Canada a National Flower." Carried.

FRUIT IN THE SMALL GARDEN.

P. H. MITCHELL, TORONTO.

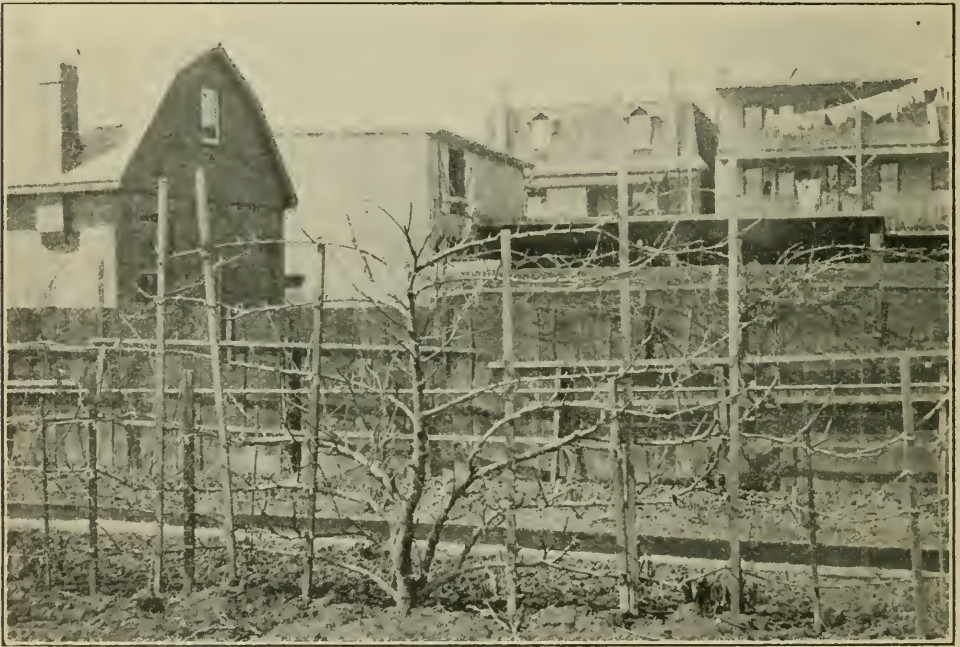
Fruit growing in the small garden is supposed to present difficulties impossible to overcome. An enthusiastic fellow gardener always attempts to frustrate my most cherished plans of intensive gardening by asking, "What about my sixteen foot lot?" But I have him there, because he can still grow his apples, his pears, his cherries, and plums and indeed leave room for the roses which he must grow, and all his perennial favorites, and, while not leaving a spacious lawn, there will still be a touch of green.

There was no fruit ever bought which can equal in flavor the fruit grown on your own lot. Can you buy Columbia Purple Raspberries in the stores? Those great luscious, juicy berries cannot be put in boxes as the juice runs out of the cracks, yet these, growing six feet high and held within bounds by tying to a light frame or trellis take up but little room. The Cuthbert Red Raspberry must also be picked within the hour before used on the table and must not absorb the taste of the wooden box. Blackberries, which, like the Purple Raspberries, form such grace-

ful bushes, are extremely prolific, and even one bush is worth while just to prove that a blackberry is red when it is green!

And Gooseberries! Why use the hard bullets of green, sour fruit? The great red English gooseberries are not a mythical impossibility. Industry can be obtained everywhere, is enormous, sweet, juicy, prolific and most invitingly red. May Duke is larger still and is my own favorite, and can be purchased in Toronto.

Currants, red, black and white: it is a matter of taste how extensively you require these. While I now grow Boskoop Giant black currants, Fay's Prolific red and Bar-le-duc white, which are the best varieties grown here, I will eventually confine the garden to Boskoop Giant and both red and white Bar-le-duc currants. These latter are practically seedless, are prolific and hardy, and excel for use in jam on account of the comparative seedlessness.



Espalier training of Apple Tree for a small garden.

And now for the orchard. Yes, and on the sixteen foot lot, if you want it. For centuries apples, pears, plums, cherries, and other fruits have been grown on trees trained as cordons, or espaliers. The cordon is merely the dwarfed tree trunk carrying fruiting spurs without branches and the espalier has opposite horizontal branches spaced about a foot apart from the ground up, and each branch carries the fruiting spurs. Each tree is tied to wire or trellis supports. Other variations of trained fruit trees are the fan-shaped and the double cordon or U-shaped tree. While these can be trained into form in the garden the most satisfactory are imported from England and France. The trees are quite cheap in cost, bear immediately and, while the fruit is limited in quantity, it is unexcelled in quality.

Apples and pears are successful as cordons or espaliers; cherries are best in fan-shaped trees, as that form will allow a more rampant growth; plums are more confined to espaliers, as, when a cordon is kept to true form it cannot have the side stub growth required for plums.

Cordons are best grown in a slanting position, say at 45 or more degrees against a high wire fence, a trellis or solid fence or wall. They may be planted two feet apart and when inclined against a six foot fence they can grow over eight feet long; such a tree should be kept down to about twenty fruits, and at this they are certainly worth while for their quality is unequalled.

Espaliers and fan-trained trees will usually be kept down to fence height, say six feet, and would then be kept about seven feet in width on the fence.

In my own garden the easterly boundary is of light trellis work between six and seven feet high and consists alternately of a narrow panel about eighteen inches wide and then a wide panel seven feet across. On the wide panels are Duchess, Astrachan and Yellow Transparent apples in espalier form; on the narrow panels are cordons of pears and also one plum. On other places in the garden are gooseberry and white currant cordons. All were planted in the spring of 1916, and in the summer of 1917 all bore well excepting the one plum cordon, and all have filled their allotted spaces.

The success of these trees and the possibilities of so many in a small space make my intention fixed that some day our garden of the future will have space for many such fruit trees as these. In Europe commercial gardens exist all of cordons and espaliers on wire supports about six feet between rows, and in a precious book just sent me from France, a perfect volume dated 1692, of M. De la Quintinge's treatise about his fruit garden creation for Louis XIV at Versailles, the whole scheme of thousands of trees is with espaliers and cordons, not as an economy in space not to create a decorative garden, but to obtain perfect fruit for a rather discriminating king.

But from Versailles to a sixteen foot garden again. The sixteen foot garden I know of is south of the house, and the rear fence as existing is usually quite shaded. Why not two Morello cherry fan-trained trees for this? Then if, say, twenty-five feet of the rear of the lot becomes the orchard (away from the back fence is better as there is always some alien palate to be tempted) and a trellis or support can be constructed across the lot, over sixty feet of wall space is available for trees, and, with cordons at two feet apart thirty can be accommodated. Apples, pears and cherries would be in a fair abundance and when the centre of the plot contains raspberries, gooseberries, currants and even some real strawberries the owner of the little garden can say with Hamlet, "I could be bounded in a nutshell and count myself a king of infinite space."

HOME AND SCHOOL GARDENING IN DETROIT.

MRS. M. H. GROSVENOR, SUPERVISOR, DETROIT.

Children's gardening in Detroit is conducted by the city as one of the activities of its Recreation Commission. A fund for this purpose is appropriated by the Board of Estimates, which provides for all supervision, instruction, labor, equipment and necessary expenses contingent upon the garden department.

The force of the garden department consists of the Superintendent of the Recreation Commission and a supervisor of gardens appointed by Civil Service Commission with yearly salary. Three assistants are allowed, whose time does not exceed six months from the first of April to the first of October. Last spring while the "Plant a Garden" movement was at its height the Recreation Commission made great efforts in its garden department to increase the number of home gardens, and also supplemented recreation work under the supervisor of women's activities with gardening from April to the latter part of August. About forty

play leaders organized garden clubs having a total membership of more than 800 children and devoted two periods a week to war gardens during the early part of the season, and one period a week during the latter part. The policy of the garden department is home gardening, that is, providing directors to go from home to home to encourage and instruct boys and girls to prepare, plant and care for their gardens according to modern scientific methods. One large community garden, however, was maintained and conducted by the garden department which accommodated several hundred children with small plots of ground who had little or no land at home.

The Recreation Commission, through its garden department, conducted demonstration gardens at two of the public schools and co-operated with the Twentieth Century Club in six community gardens by way of providing a director, equipment, or both. The co-operation of the Twentieth Century Club, the Detroit Branch National Plant, Flower and Fruit Guild, and the Recreation Commission in sustaining home and school gardening for children was unwavering, and is of great value to the success of the garden movement in Detroit.

The Twentieth Century Club distributed 259,672 packets of flower and vegetable seeds to the school children of Detroit at a penny a packet. It also made a donation of \$60 worth of flowers and vegetable seeds to the Recreation Commission, furnished automobiles upon several different occasions to make tours of garden inspection and provided the salary of a garden director, to assist the supervisor of gardens for a period of four months. In addition, the chairman and members of the Committee served as an advisory council, visiting home and school gardens during the season and acting as judges of the children's vegetable contests.

The National Plant, Flower and Fruit Guild, Detroit Branch, in co-operation with the Twentieth Century Club and extension department of the Michigan Agricultural College, maintained and conducted a Patriotic Garden Bureau and Garden School for the benefit of garden teachers and public who desired information in modern scientific gardening. Trained and experienced teachers were in charge of all of these meetings.

The Recreation Commission was fortunate in securing the co-operation of the State Club leader, Mr. E. C. Lindemann, early in the season. Under his direction the garden department adopted the Michigan plan for its method of conducting children's gardening. At that time Wayne County had no agent of agriculture; since then it has received an active and efficient county agent, versed in science of agriculture and scientific methods, to whom we apply and from whom we receive assistance, who, also, is the connecting agent between the local organization and the State Agricultural College, which in turn is the co-operating force of the United States Department of Agriculture.

Under the Garden Department the city was divided into three districts, the supervisor and two directors being each responsible for the garden work in a district. The children were reached through the recreation centres, or by the co-operation of the superintendent of the public schools, principals and teachers of the schools.

The children were at once organized into garden or canning clubs. They elected their own officers, president, vice-president and secretary, adopted a simple constitution and by-laws and signed the standard garden pledge for boys' and girls' clubs. An advisory council and local leader were sought among the people of the community, or teachers of the school to which the club belonged. By such assistance the work of the director was made easier and results were more beneficial to the community. Meetings of each club were held regularly once a week under

supervision of the director or local leader. The meetings were conducted according to parliamentary usage. At the close of the business the lesson or story on some garden or nature subject was given, or the garden records were reviewed and discussed. Field demonstrations and practice lessons followed the meeting.

The children were not only taught secrets in the art of growing flowers and vegetables, but when the gardens began producing canning demonstrations were given at various club centres, to which all children were invited to come and bring their own jars and vegetables to be taught to can after the one period cold pack method. The vegetables were almost always taken from their gardens. The kitchens of a number of public schools, settlements, and private homes were opened to the Recreation Commission for canning centres. Canning meetings were held regularly once a week in most of the centres, many times oftener. Many club members were intensely interested in the canning, this was especially true of the boys. One boy became so enthusiastic that he began teaching his mother and all



Children's playground.

her friends the one period cold pack method. He canned, for illustration, one bushel of tomatoes. After that he assisted with all the summer and fall canning. This is one instance from many which are equally interesting.

Exhibits of the first vegetables of the season for all garden clubs of the Recreation Commission were held at the Kirby garden on Saturday mornings. First, second and third ribbon premiums were awarded on basis of cleanliness, neatness in packing, quality and uniformity in size. Other interesting displays of the children's work were fresh and canned products at the Twentieth Century Club during Food week; at the Michigan State Fair, August 29th-Sept. 9th, in which 54 children made 86 entries of flowers and vegetables and canned products, receiving 35 premiums, of which 8 were first prizes.

The garden festivals held in the public schools in September, an annual affair under the auspices of the Twentieth Century Club, to which every pupil brings a bit of his garden to make up the display, were marked with contributions of Garden Club members. Almost every school of the thirty-three exhibiting had a garden club in the community.

The Convention then closed with the singing of the National Anthem, after which the delegates visited the greenhouses of Sir Edmund Osler.

ACTUAL RECEIPTS AND EXPENDITURE OF HORTICULTURAL SOCIETIES IN 1917.

Societies.	Legislative grant.	Municipal grants and donations.	Members' fees.	Gate receipts at exhibitions.	Total actual receipts.	For exhibitions.	For seeds, bulbs and plants and Civic improvement.	Lectures and periodicals.	Officers' salaries.	Total actual expenditure.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Alvinston	(No returns)									
Amherstburg	76	114	105		349	40	244		25	347
Aylmer	82		78		334	11	297			357
Barrie	160		200		423		219		35	334
Belleville	62	50	80		176		133	17	25	210
Blenheim & Harwich	75		150		429		288	14		349
Bowmanville	49	30	85		164		148		10	164
Brampton	169		234		403		281	84		403
Brantford	309	300	753		1,362		979	22	100	1,152
Brussels	75		111		261		114	9	10	173
Cardinal	35		52		98					64
Carleton Place	146	33	213	25	461	52	250	6	50	413
Chatham	438	1,417	357		2,750		2,479		50	2,740
Clifford	179	10	104	218	726	314			30	686
Clinton	114	25	242		381		413	6		437
Cobourg	40		73		113		38		4	101
Dryden	40		38	11	99	77			37	150
Dundas	113		109		553	29	419	32	25	518
Durham	42	5	52		133		81	2	20	130
Elmira	48	47	66	22	193	54	88	19	10	203
Elora and Salem	54	47	94	18	286	74	140		23	354
Essex	87	55	130		274		45	109	50	221
Fergus	42		80	7	132	81	45		15	197
Ford City	43	132	102		325		295	23		353
Fort William	61	8	161	31	286	89	117	3	25	319
Galt	195	108	218	36	623	285	235	10	100	734
Goderich	92	45	135		278		230		20	276
Grimsby	45		75		120		52	27		89
Guelph	158	175	330		804		381	129		1,036
Haileybury	88	44	90	28	392	187			45	428
Hamilton	334	50	601		1,004	26	437	148	130	998
Hanover	127	53	235		500		447	24	20	557
Hespeler	55	135	109		304		111	34	10	164
High Park	84		156		289	74		24	14	222
Hillsburg	77	10	26	89	276	193	17		15	326
Ingersoll	75	20	169		835		546			780
Kingston										
Kingsville	88	75	95		494		321			463
Kitchener	297	154	221	115	894	309	245	7	100	907
Lindsay	85	5	301		564		254	56		399
Listowel	73	30	60		163		79	13		191
London	340		617		1,010		55	233	110	902
Midland	(No returns)									
Milton	46	1	99	26	183	52	55	9		190
Mitchell	75		131		221		188	12	25	243
Napanee	54	100	53		210		106	20	25	167
Newcastle	36		69		228		81			98
Oakville	35	13	111		162	10	176	4		205
Orangeville	111		96		411	36	301		10	383
Orillia	57		128		185		133	2		179
Oshawa	84		133		228	145	38			222
Ottawa	535	374	1,457		2,429	183	1,547	12	150	2,456
Owen Sound	110	57	139	18	514	152	282	6	20	531
Paris	189	100	300	9	809	113	458	26		714
Perth	160	30	151		504		319	50	30	563
Peterborough	234	110	288		644	12	469	9	50	646
Picton	37		111		148		70	6	20	164
Port Credit	32	46	68		172	68				149

**ACTUAL RECEIPTS AND EXPENDITURE OF HORTICULTURAL SOCIETIES
IN 1917.—Concluded.**

Societies.	Legislative grant.	Municipal grants and donations.	Members' fees.	Gate receipts at exhibitions.	Total actual receipts.	For exhibitions.	For seeds, bulbs and plants and Civic improvement.	Lectures and periodicals.	Officers' salaries.	Total actual expenditure.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Port Dover	62		92		281		181	54	40	299
Port Hope	72		131		203		163	16	10	194
Richmond Hill	60	51	74	20	205	65	92			202
St. Catharines	713	578	824	174	2,596	557	868	9	310	2,678
St. Thomas	800	1,350	765		5,326		4,846	46	225	5,589
Sandwich	292	705	274		1,293	59	792	50		1,235
Seaforth	143		220		591		422	11	35	623
Smith's Falls	101	200	82	9	392	42	279			370
Stirling	46		72		125		103	33		142
Stratford	344	62	669		1,394	79	867	6	75	1,497
Strathroy	149		249		398	25	263	10	25	450
Thornhill	49	16	59		241	66				366
Tillsonburg	116		85	55	715	38	611	12	25	787
Toronto	593	257	808		1,993	363	202	66	170	2,163
Walkerton	42		63	21	135		31	20	22	133
Walkerville	184		183		501		300	2	75	554
Wallaceburg	75	219	134		586		295			356
Waterloo	61	25	85		195		91	40	40	207
Westboro	51		113		164		135	3		179
Weston	120	36	159		356	28	170		10	410
Whitby	64		88		188	1	127	24		175
Winchester	125	60	174		386	17	194	1	20	385
Windsor	585	300	584		1,694		1,297		150	1,706
Woodstock	101	91	300	41	592		440	18	21	578
Totals	11,495	7,958	16,728	973	46,859	4,006	26,515	1,628	2,691	47,035

* For lawns and gardens.

STATEMENT OF MEMBERSHIP AND LEGISLATIVE GRANTS FOR 1916-18.

Societies.	Expenditure in 1917, on which grant for 1918 is based.	Membership.		Legislative grants.		
		1916	1917	1916	1917	1918
	\$ c.			\$	\$	\$
Alvinston (organized in 1917)....	98 90		59		59	45
Amherstburg	347 40	90	105	108	76	124
Aylmer	357 37	133	100	75	82	125
Barrie	333 65	175	200	188	160	151
Belleville	209 51	103	80	93	62	80
Blenheim & Harwich (organized in 1917)						
	348 93		150		75	139
Bowmanville	164 01	95	85	62	49	70
Brampton	402 66	223	234	156	169	180
Brantford	1,151 83	249	753	216	309	545
Brussels (organized in 1917)	172 63		111		75	80
Cardinal	63 88	52	52	40	35	32
Carleton Place	412 91	188	213	122	146	176
Chatham	2,739 81	208	357	125	438	800
Clifford	685 90	151	153	176	179	229
Clinton	436 75	190	242	135	114	192
Cobourg	101 40	83	73	61	40	49
Dryden	149 68	55	50	77	40	55
Dundas	518 14	106	109	92	113	171
Durham	129 95	56	52	57	42	50
Elmira	202 94	86	66	67	48	74
Elora & Salem	354 04	76	94	75	54	123

STATEMENT OF MEMBERSHIP AND LEGISLATIVE GRANTS FOR 1916-18.—Concluded.

Societies.	Expenditure in 1917, on which grant for 1918 is based	Membership.		Legislative grants.		
		1916	1917	1916	1917	1918
	\$ c.			\$	\$	\$
Essex	220 79	114	130	64	87	99
Fergus	196 55	70	80	57	42	75
Ford City	353 33	95	102	75	43	124
Fort William	318 68	123	184	91	61	142
Galt	734 50	221	218	214	195	263
Goderich	276 14	139	135	104	92	115
Grimsby	89 05	69	75	43	45	47
Guelph	1,035 81	166	330	188	158	378
Haileybury	427 96	91	90	107	88	141
Hamilton	997 70	457	601	329	334	456
Hanover	556 58	141	235	102	127	221
Hespeler	164 40	85	109	76	55	78
High Park	222 40	125	174	78	84	114
Hillsburg	326 28	75	60	75	77	104
Ingersoll (organized in 1917)	780 35	.....	169	.....	75	259
Kingston .....	.....	190	.....	176	.....	.....
Kingsville	462 89	97	95	89	88	151
Kitchener	907 45	266	268	320	297	324
Lindsay	399 07	75	299	65	85	200
Listowel	190 76	80	60	75	73	69
London	901 93	400	617	288	340	436
Midland .....	.....	78	.....	61	47	67
Milton	189 52	105	100	71	46	81
Mitchell	243 37	112	131	79	75	106
Napanee	166 70	60	53	60	54	60
Newcastle	98 11	78	69	58	36	47
Oakville	205 42	105	111	70	35	89
Orangeville	382 63	127	96	138	111	131
Orillia	179 14	122	128	75	57	88
Oshawa	221 78	180	133	106	84	100
Ottawa	2,455 98	614	1,457	470	535	800
Owen Sound	531 25	140	167	121	110	192
Paris	713 73	133	300	145	189	283
Perth	563 29	186	151	171	160	196
Peterborough	645 97	360	300	251	234	265
Pictou	163 85	74	111	52	37	78
Port Credit	149 35	78	68	57	32	60
Port Dover	299 48	87	92	121	62	107
Port Hope	194 31	136	131	88	72	93
Richmond Hill	202 08	85	74	65	60	76
St. Catharines	2,678 28	772	824	677	713	800
St. Thomas	5,589 24	1,370	765	800	800	800
Sandwich	1,234 98	213	282	344	292	415
Seaforth	622 97	87	220	108	143	234
Smith's Falls	369 51	103	82	153	101	123
Stirling	141 73	67	72	57	46	60
Stratford	1,496 87	501	669	349	344	609
Strathroy	449 67	211	249	130	149	198
Thornhill	365 86	67	59	67	49	115
Tillsonburg	786 93	143	85	136	116	234
Toronto	2,163 33	1,179	1,006	500	593	700
Walkerton	133 31	75	63	54	42	55
Walkerville	553 86	362	183	287	184	204
Wallaceburg (organized in 1917)	351 94	.....	119	.....	75	130
Waterloo	206 92	111	85	98	61	81
Westboro	178 86	92	113	50	51	83
Weston	410 35	158	179	119	120	164
Whitby	174 92	109	88	85	64	74
Winchester	384 81	112	182	106	125	159
Windsor	1,705 79	537	584	614	585	636
Woodstock	578 23	102	300	89	101	248
Totals	46,954 31	14,798	17,162	11,773	11,601	16,327

PRESIDENTS AND SECRETARIES OF HORTICULTURAL SOCIETIES.

Societies.	Presidents.	Secretaries.	Address
Acton	Wm. White	R. M. McDonald	Acton.
Agincourt	G. B. Padget	T. A. Paterson	Agincourt.
Alvinston	H. Paull	P. P. Winn	Alvinston.
Amherstburg	Dr. O. Teeter	Rev. F. O. Nichol	Amherstburg
Aylmer	F. L. Wagner	A. A. Learn	Aylmer.
Barrie	J. A. MacLaren	T. T. Young	Barrie.
Belleville	A. E. Thrasher	W. Jeffries Diamond	Belleville.
Blenheim & Harwich	Dr. C. B. Langford	O. F. Anderson	Blenheim.
Bowmanville	Rich. Jarvis	Mrs. E. V. Scobell	Bowmanville.
Brampton	T. Thauburn	F. T. Jennings	Brampton.
Brantford	Geo. H. Ryerson	E. E. C. Kilmer	Brantford.
Brussels	W. H. Kerr	B. S. Scott	Brussels.
Cardinal	J. F. Carr	J. F. Harries	Cardinal.
Carleton Place	A. H. Edwards	I. R. McDiarmid	Carleton Place
Chatham	Jno. Glassford	Jas. Innes	Chatham.
Chesterville	W. H. Casselman	Miss Helen Moad	Chesterville.
Clifford	Robt. Burnett	Jno. R. Scott	Clifford.
Clinton	M. D. McTaggart	Thos. Cottle	Clinton.
Cobourg	G. J. Anderson	C. R. Gummow	Cobourg
Dryden	Rev. E. Whitehouse	Alex. Kennedy	Dryden.
Dundas	F. E. Lennard	Jas. A. Kyle	Dundas.
Durham	Jno. Graham	C. Elvidge	Durham.
Dutton & Dunwich	Wm. Patton	W. H. Cape	Dutton.
Elmira	I. Hilborn	C. W. Schierholtz	Elmira.
Elora and Salem	W. McPhee	W. O. Mendell	Elora.
Essex	W. N. Davies	Rev. H. Millar	Essex.
Fergus	A. Perry	I. C. Templin	Fergus.
Ford City	Jos. L. Reaume	I. F. Foster	Ford City.
Fort William	Paul Vanderkaa	Mrs. A. Caskey	Fort William
Galt	L. Norman	Arthur MacBean	Galt.
Goderich	Ino. Straiton	W. Lane	Goderich.
Grimsby	E. G. McCallum	W. B. Calder	Grimsby.
Guelph	Wm. Laidlaw	J. E. Carter	Guelph.
Halleybury	Theo. Connor	I. N. White	Halleybury.
Hamilton	Jno. A. Webber	Mrs. R. B. M. Potts	16 Bruce St., Hamilton.
Hanover	J. A. Magee	Miss Florence Kirchner	Hanover.
Hespeler	C. A. Michie	E. H. Birkin	Hespeler.
High Park	W. T. Graham	H. P. Howard	208 Pearson Ave., Toronto.
Hillsburg	Rev. J. D. Stephens	Miss Z. Barbour	Hillsburg.
Ingersoll	Rev. Jno. G. Scott	Mrs. F. W. Bowman	Ingersoll.
Kingston	Lt.-Col. R. E. Kent	A. W. McLean	Kingston.
Kingsville	W. E. DeLong	J. E. Brown	Kingsville
Kitchener	Wm. Downing	H. R. Wood	Kitchener.
Lindsay	G. H. M. Baker	Miss Mary Hogan	Lindsay.
Listowel	J. M. Campbell	Thos. Male	Listowel.
London	S. F. Wood	A. M. Hunt	London.
Midland	(No report.)		
Milton	Mrs. M. E. Gowland	R. L. Hemstreet	Milton.
Mitchell	Rev. A. Dede	A. J. Blowes	Mitchell.
Morrisburg	J. H. Meikle	S. A. Morrison	Morrisburg.
Napanee	E. J. Pollard	W. S. Herrington	Napanee.
Newcastle	Rev. J. Rae	Mrs. J. E. Matchett	Newcastle.
Niagara Falls	H. J. Moore	Miss Eva Dobbie	Niagara Falls.
Oakville	W. S. Savage	L. V. Cote	Oakville.
Orangeville	Dr. G. H. Campbell	H. F. Tuck	Orangeville
Orillia	Isaac Day	Geo. J. Overend	Orillia.
Oshawa	D. A. Vallean	Mrs. E. J. Jacobi	Oshawa.
Ottawa	Geo. Simpson	H. W. Jackson	25 Sparks St., Ottawa.

PRESIDENTS AND SECRETARIES OF HORTICULTURAL SOCIETIES.—*Continued.*

Societies.	Presidents.	Secretaries.	Address.
Owen Sound	B. Arthur	Miss J. S. Maughan....	Owen Sound.
Paris	W. N. Bell	O. R. Whitby	Paris.
Perth	Hy. Taylor	Robt. J. Smith	Perth.
Peterborough	W. Stocker	C. H. Williamson	Peterborough.
Pictou	Jno. L. Graydon	Walter T. Ross	Pictou.
Port Credit	Rev. G. P. Duncan	A. W. Briggs	Port Credit.
Port Dover	Jno. Aldredge	W. L. Sovereign	Port Dover.
Port Hope	Thos. Garnett	W. T. Greenaway	Port Hope.
Richmond Hill	Wm. Pratt	Mrs. A. L. Phipps	Richmond Hill.
St. Catharines	W. B. Burgoyne	Mrs. Pirie Blain	St. Catharines.
St. Thomas	Dr. F. E. Bennett	R. W. Johnson	St. Thomas.
Sandwich	Dr. W. J. Beasley	A. R. Marentette	Sandwich.
Seaforth	Wm. Hartry	A. D. Sutherland	Seaforth.
Smith's Falls	W. T. Ferguson	H. S. Hunter	Smith's Falls.
South Norwich Tp.	Mrs. E. M. Pennington.	Miss Ivy E. Pennington	Otterville.
Stirling	J. S. Morton	Geo. E. Kennedy	Stirling.
Stratford	S. R. McConkey	Jno. Elborn	15 Norman St., Stratford.
Strathroy	F. W. Atkinson	Chas. Beckett	Strathroy.
Thornhill	A. W. Galbraith	Miss M. Simpson	Thornhill.
	(Newtonbrook)		
Tillsonburg	V. A. Sinclair	A. E. Raynes	Tillsonburg.
Toronto	P. H. Mitchell	O. St. G. Freer	19 Melinda St., Toronto.
Walkerton	N. C. McKay	Jas. Tolton	Walkerton.
Walkerville	C. D. Brown	D. C. Bawtinheimer...	Walkerville.
Wallaceburg	Rev. A. C. Calder	Rev. M. C. Tait	Wallaceburg.
Waterloo	Geo. Coltart	J. Uffelmann	Waterloo.
Weland	Jno. Young	D. T. Black	Weland.
Westboro	J. E. Cole	Miss B. R. Davidson..	Woodroffe.
Weston	T. L. Moffatt	J. M. Pearen	Weston.
Wheatley	J. W. Kennedy	Mrs. R. W. Leader	Wheatley.
Whitby	Rev. Jos. Fletcher	R. M. Tipper	Whitby.
Winchester	J. H. Ross	E. N. Elliott	Winchester.
Windsor	Mrs. C. W. Cadwell	H. J. McKay.....	Windsor.
Woodstock	J. Y. Smiley	W. L. McKay	Woodstock.

FORTY-NINTH ANNUAL REPORT
OF THE
Fruit Growers' Association
OF
Ontario
1917

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO:

Printed by A. T. WILGRESS, Printer to the King's Most Excellent Majesty

1918

Printed by
WILLIAM BRIGGS,
Corner Queen & John Sts.,
Toronto.

CONTENTS

	PAGE
OFFICERS AND COMMITTEE FOR 1918	5
TREASURER'S REPORT	5
ANNUAL MEETING	7
President's Address: F. A. J. SHEPPARD	7
Report of Historical Committee: A. W. PEART AND W. T. MACOUN	9
Report of New Fruits Committee: W. T. MACOUN	12
The Car Situation: G. E. MCINTOSH	14
Economical Sprays and Spraying for 1918: PROF. L. CÆSAR	20
The Work of the Fruit and Vegetable Committee of the Food Controller's Office: D. JOHNSON	26
The Licensing of the Fruit and Vegetable Trade: J. R. HASTINGS	30
The Apple Situation for 1918: J. G. ANDERSON	33
The Apple Shipping Associations and the 1918 Crop: F. C. HART	37
The Labor Supply in 1918 for the Fruit and Vegetable Farms: DR. W. A. RIDDELL	39
Strawberry Growing in Prince Edward County: H. LEAVENS	46
The Effect of the War on the Farm Apple Orchards: DR. A. J. GRANT	52
The Labor Situation for Fruit Farmers: MISS HARVEY	59
Proposed Changes in the Standard Eleven-Quart Basket and Apple Box: P. J. CAREY	66
Grapes, Outlook for 1918: F. G. STEWART	70
Peaches, Outlook for 1918: H. FLEMING	72
Plums, Outlook for 1918: A. ONSLOW	73
Pears, Outlook for 1918: H. T. FOSTER	75
Cherries, Outlook for 1918: W. A. MITCHELL	76
Small Fruits, Outlook for 1918: L. HARRISON	76
Report of Resolutions Committee	78

Fruit Growers' Association of Ontario

OFFICERS FOR 1918

<i>President</i>	R. W. GRIERSON, Oshawa.
<i>Vice-President</i>	J. R. HASTINGS, Winona.
<i>Secretary-Treasurer</i>	P. W. HODGETTS, Parliament Buildings, Toronto.
<i>Executive</i>	OFFICERS, together with W. F. W. FISHER, Burlington, and F. A. J. SHEPPARD, St. Catharines.
<i>Auditor</i>	D. F. CASHMAN.

DIRECTORS.

DIV. 1. R. B. WHYTE, Ottawa.	DIV. 8. F. A. J. SHEPPARD, St. Catharines.
2. E. CASSELMAN, Iroquois.	9. CHAS. HOWARD, Hagersville.
3. HOWARD LEAVENS, Bloomfield.	10. THOS. ROWLEY, Leamington.
4. J. G. WAIT, Colborne.	11. A. STEPHENSON, Longwood.
5. R. W. GRIERSON, Oshawa.	12. J. C. HARRIS, Ingersoll.
6. W. F. W. FISHER, Burlington.	13. W. MITCHELL, Clarksburg.
7. J. R. HASTINGS, Winona.	

REPRESENTATIVES TO FAIR BOARDS AND CONVENTIONS.

Canadian National: W. F. W. FISHER, Burlington.
London: ALBERT STEPHENSON, Longwood, and THOS. ROWLEY, Leamington.
Ottawa: R. W. GRIERSON, Oshawa, and R. B. WHYTE, Ottawa.

COMMITTEES.

Horticultural Publishing Company: R. B. WHYTE, Ottawa.
New Fruits: W. T. MACOUN, Ottawa; PROF. J. W. CROW, Guelph; E. F. PALMER, Vineland Station.
Historical: A. W. PEART, Burlington; W. T. MACOUN, Ottawa.

TREASURER'S REPORT, 1917

RECEIPTS.

Balance on hand, 1916.....	\$480 87
Fees, 1917	333 90
Grant	1,700 00
Miscellaneous	68 91
	\$2,583 68

EXPENDITURES.

Annual meeting	\$289 97
Committees	83 45
Periodicals	150 25
Transportation	519 63
Miscellaneous	189 77
Balance on hand	1,350 61
	\$2,583 68

Audited this 14th day of February, 1918,
and found correct.

D. F. CASHMAN, *Auditor.*

F. A. J. SHEPPARD, *President.*
P. W. HODGETTS, *Secretary-Treasurer.*

Fruit Growers' Association of Ontario

ANNUAL MEETING

The fifty-eighth annual convention of the Fruit Growers' Association of Ontario, held in Toronto, Ontario, at the Carls-Rite Hotel, on Thursday and Friday, the 14th and 15th of February, 1918.

F. A. J. SHEPPARD, St. Catharines, the President, presiding at all the sessions.

PRESIDENT'S ADDRESS.

F. A. J. SHEPPARD, ST. CATHARINES.

As President of the Ontario Fruit Growers' Association it affords me a great deal of pleasure to welcome you to this our fifty-eighth annual convention.

Since we met here in Toronto in annual convention about a year ago, our fruit growers and the citizens of the Dominion, as a whole, have passed through a strenuous year, one of the most strenuous in the history of our country, and we have been brought face to face with conditions, such as the oldest among us have never experienced and the youngest among us never dreamed could be brought about. The great world war which was raging when last we met, and which we all had hoped would be over before we met again, is still on, our common enemy the ruthless Hun is still going strong, and in spite of the peace talk the end is not yet in sight. Since last we met our American cousins of the great Republic to the south of us have cast in their lot with our Allies, and it is our most fervent hope and prayer, that the assistance which that great nation of one hundred million people will be able to render will go a long way toward hastening the time when the dove of peace will spread her gentle wings over the devastated and shell-torn battle-fields of Europe, and usher in a rightful and abiding peace to the war weary nations of the world.

We must indeed deem it a great privilege to be able to meet here to-day and discuss the problems confronting our fruit growers, without being disturbed by the worrying of aircraft or the bursting of bombs over our heads, and for these great blessings we owe a debt of gratitude to the invincible British navy, for keeping our enemies thousands of miles away from our shores.

The war has made many changes in the industrial conditions of our Dominion. All kinds of supplies and materials have greatly advanced in price, many of them being double and some treble what they were at the beginning of the war. Transportation facilities, always one of our big worries, have been demoralized. It is true the war has made a lot of money for some people, and has had the effect of putting large sums of money into circulation, and through the very large contracts for munitions and other army supplies placed with our manufacturers, a large measure of prosperity has been maintained. I am sorry to say, however, that we fruit growers have not fallen heir to our fair share of this prosperity. I maintain that the fruit growers of this Province, in 1917, have been the hardest hit of any class of our citizens. We have had to contend with a scarcity and high cost of labor on the farms, the increased price of supplies, such as spray material, spraying

machines, implements, and machinery for working the land, fertilizers, etc., increased cost of packages and last, but not least, a higher priced, but very much less efficient, system of transportation for our fruit.

While the prices of all our raw materials have soared heavenward, the price of the fruit has not risen proportionately, and the result is that a lot of our fruit growers have come out of the small end of the horn, and in some cases the last state of these men's efforts in the fruit business is worse than the first. Added to the long list of vicissitudes which I have mentioned, in the year 1917 we experienced very unfavorable weather conditions, which put the finishing touch on the business. While I have not accurate figures at hand, I am safe in stating that the apple crop of the Province of Ontario for the year 1917 was the lightest experienced for a great many years. In fact it might be termed as an almost total failure. Peaches, plums, pears, grapes, and berries also suffered heavily from the excessive rainfall which continued from early spring until the end of July. None of these fruits averaged over 50 per cent. of a crop, and some varieties were as low as 15 per cent. Tomatoes in the Niagara Peninsula were almost a total failure, due to the wet, with the grape crop less than 60 per cent. at the best. An early frost before they were fully ripe spoiled fully one half of them for shipping or for grape juice purposes. Altogether the year just closed was a disastrous one for the fruit growers. Are we down hearted? No! We will go back at it again with faith and hope for better things in 1918.

The year just closed, during which I have had the honor of presiding over your Association, will not go down in history as a brilliant one. Your executive met in June to consider the question of advanced freight rates, and also to confer with a delegation from British Columbia concerning the apple situation there and in Nova Scotia. Mr. McIntosh, Mr. W. H. Bunting and myself appeared before the Dominion Railway Board regarding the 15 per cent. increase of freight rates, of which Mr. McIntosh will, no doubt, give you a full account. Mr. R. W. Grierson, our Vice-President, and myself were appointed by the executive to accompany the British Columbia delegates, Mr. Palmer and Mr. Barnes, to Ottawa, where in company with our Fruit Commissioner, Mr. Johnson, we were granted an interview by Sir Robert Borden and other members of his Cabinet; and discussed the distribution and marketing of apples and other fruits with them and were promised all possible assistance from the Department. At the time Mr. Palmer and Mr. Barnes left British Columbia they were not aware that the Ontario apple crop, and also the crop of Western New York, was such a complete failure, and it was this fact that enabled them, both British Columbia and Nova Scotia, to dispose of their large crop at fairly remunerative prices.

Owing to the continuance of the war it was not deemed advisable to hold the usual Fruit and Flower Show in November, which added so much to the success of our annual conventions before the war. As I stated in starting out, we are laboring under changed conditions, and to-day we are brought face to face with the most serious condition our nation could imagine, viz., a shortage of food. If any one had told us five years ago that there could ever come a famine in this Dominion of ours we would have said that they were crazy and should not be allowed to roam at large. But the food shortage in this country and all countries in the world is appalling, and is a great deal more acute than we have any idea of. Unless we wake up and put forth every energy available, not only to speed up production but to eliminate waste, if the war continues for another year or two I would not care to guarantee that we would get three square meals a day. Under existing conditions on the farm of farm labor and high cost of everything it will not

be possible for the farmers to produce much more in 1918 than they did in 1917, but we should give them every possible assistance in trying to do so! The great saving, however, must come through economic handling of what we have, and it is up to us to eliminate every particle of waste, both in food and energy, and learn to get along with less of the foods that can be transported overseas and which are so much needed by our gallant boys at the front.

Canada has done well, the farmers and the fruit growers have done well, but we must do more and bear more sacrifices if we are to carry on to the end.

The transportation problem is still likely to be our biggest worry, and we as fruit growers are deeply indebted to our transportation agent, Mr. G. E. McIntosh, for the very able work he has performed in our behalf. Our best thanks are also due our Dominion Fruit Commissioner, Mr. D. Johnson, for his untiring efforts in the cause of the fruit growers, and also for taking care of a large part of Mr. McIntosh's expenses during the last year.

I will not trespass further on your time, but in closing will urge you all as fruit growers to put forth your very best efforts to increase production of more and better fruit in 1918.

The coldest January in over fifty years, and the first week of February registering temperatures of from 15 to 30 below zero, have not yet revealed to us what fruit prospects for 1918 really are. But we must be optimistic, and go steadily forward, strong in the faith that if we do our whole duty honestly and faithfully we are bound to succeed.

I thank you for the patient hearing you have given me, and trust that the excellent addresses which you are to listen to during this convention will be both a pleasure and benefit to all present.

The Treasurer's report was then presented and before being passed the following statement was made in reference to the balance:—

THE TREASURER: You will notice that our balance is much larger than we have had for a good many years. That is accounted for very largely from the fact that at the request of the Fruit Growers' Association Mr. McIntosh was transferred to the Department of Agriculture, at Ottawa, as Transportation Agent, so that he might be able to work in a wider field for the fruit growers of the whole Dominion of Canada. Mr. McIntosh had been giving some little time to the other provinces, and the Fruit Growers' Association of Ontario had been bearing the expense, and at our Convention a year ago a resolution was passed urging on Mr. Johnson and the Minister of Agriculture that the Department should take over Mr. McIntosh and make use of his services for the fruit growers of the Dominion. This was done, with the result that our expenditure for transportation work was cut more than in two, and in that way we have a larger surplus this year.

It was too late in the year for the Executive to make any plans for spending the money they had on hand at that time, and that is something that the Association can determine for the coming year.

REPORT OF THE HISTORICAL COMMITTEE.

A. W. PEART AND W. T. MACOUN.

The year 1917 was an unfavorable one for the fruit grower. There was a great deal of rain from the middle of May to the end of July, especially during the latter month. This was followed by a long drought which was not broken until the middle of September. These conditions were against the grower.

Although there was abundance of blossom on the large tree fruits it failed to set, with the result that the apple crop was the lightest in perhaps twenty-five years. The quality, too, was very poor, owing largely to the prevalence of injurious insects. A great deal of the spraying done was not effective on account of the frequent rains.

No doubt a contributory cause to the sterility of the fruit blossoms was to be found in the peculiar character of the previous year, which, through excessive rains at one season and scorching droughts at the next, made a stubborn soil condition, which prevented the proper growth and maturity of the buds.

Pears suffered alike with apples, and all the other tree fruits to a greater or less extent.

Small fruits were a fair crop. As a consequence of the fruit shortage prices ruled high.

The past three years have been very trying to the fruit grower. His crops have been poor, he has had to labor under unfavorable weather and soil conditions, and has suffered from a lack of competent help on his farm.

Farm labor has been absorbed, partly by the war and partly by the non-farming interests. Urban industries go into the labor market and offer a high scale of wages. A farmer cannot compete with them and have any profit left. The result is that our farms are under-manned, and our fruit plantations and orchards measurably neglected. This applies especially to the fruits and vineyards. On a small fruit plantation a grower can readily curtail his operations, reduce his acreage of fruit, sow more grain, or seed down his fields, and thus lessen the work.

The two last wet years have led to a considerable increase in tile drainage of orchards. Ditching machines, with coal oil as fuel, have been used in some districts. These tractors when properly handled do marvellous work, ranking with the self-binder in ability and efficiency. They are caterpillar tractors and dig out their forty or fifty rods a day, at any depth from two to six feet, leaving a good bottom for laying tile with a uniform fall. Speaking of tractors, it is interesting to note that the Government has obtained 1,000 Ford tractors to be sold to farmers at cost price for ploughing.

This committee always welcomes any historical information bearing on the origin or growth of any branch of the fruit industry.

Mr. William Armstrong, of Niagara-on-the-Lake, has recently furnished us with some information regarding the peach industry, which goes to show that it is well over a century old. In his possession is a diary—loaned to me for a few days—made by the late James Durham, Esq., of the Niagara River Road, near Queenston. Under date of March 29th, 1850, he records that on that day he is planting peach trees, to renew an old peach orchard planted by his father. On March 7th is recorded that his father, whose name was also James Durham, had met with an accident in his old cider mill, fifteen years before and was killed.

This would make the death of James Durham, Sr., on March 7th, 1835. He was born in 1769, of United Empire Loyalist stock, and once told his neighbor, Thomas Vrooman, that he had planted the first peach orchard of any extent in Niagara Township, about the year 1814. The orchard had around 500 trees.

For the last four years at each successive meeting of our Association we have hoped to be able to chronicle the fact of the end of the war and the restoration of peace. This world war of three and one-half years, with the millions of casualties and lost billions of treasure is searching, searching out the spirit of manhood of nations and individuals.

Many outstanding events have taken place in 1917—the collapse of Russia as an entente military factor, and her social and political disintegration into the chaos and anarchy of the jungle; the entry of the United States last spring as our ally with her vast resources of men and money; the elimination of the enemy in East and West Africa; the capture of Jerusalem and Baghdad by the British, where the crescent, after a reign of 600 years, gave way to the cross. These great national epics have been watched with the deepest interest by Canadians.

Our Canadian people have steadfastly set their faces to grapple with the situation to the utmost of their ability and resources, then, whatever may be the ultimate issue, we, as Canadians, and our descendants will always feel that we did what we could.

Many of our members have sons at the front, some killed, some wounded, and others again unscathed. All honor to our brave boys!

The final result seems to be slowly resolving itself into a question of foodstuffs.

Give the allies food, and with their superior numbers and resources time is on our side, and we should win. I am sure we will all make our greatest effort.

Those of us who carry on general farming especially, in addition to growing fruit, will try to produce more abundantly—each to the limit of his opportunities—such essential war foods as pork and wheat. Canada is doing well. We must carry on to a victorious conclusion.

MR. PEART: In addition to this report I have here the names of a number of young men who have been killed at the front. I have been talking the matter over with Prof. Macoun and the question was raised as to whether we should have these names published this year in view of the fact that there are a number of fruit growers scattered all over Ontario, and some of their sons have been killed, and it was a question of whether we should only put in the members of our Association or of all fruit growers in the Province.

DR. GRANT: I think it would be a good idea to commence now and have the Honor Roll published in connection with the proceedings of this convention. The material can be secured by circularizing the members, asking them to send in the names of those who have made the supreme sacrifice, and I think we should limit it to the members of the Association. I would have much pleasure in putting that as a motion.

MR. BUNTING: Dr. Grant favors an Honor Roll of the members' sons of this Association that have enlisted for overseas service. That being so, I have great pleasure in seconding his motion. It is also intimated that the Roll should be commenced at once, and that it should be divided into two sections, those who have given their services to the country voluntarily, and then a list of those who have made the supreme sacrifice.

MR. ARMSTRONG: In case there should be any daughters of fruit growers on the nursing staff, their names also should be mentioned.

THE CHAIRMAN: You have heard the motion that the Secretary proceed at once to ascertain the names of fruit growers or sons of fruit growers who have enlisted for overseas service, and also those who have made the supreme sacrifice, and the daughters of fruit growers who have joined the nursing staff, and that this list be prepared as fully as possible and be published along with the proceedings of this Annual Report. Carried.

MR. PEART: Mr. Macoun and I would like very much if every member of the Association would send us any historical notes bearing on any of the varieties of fruits, and more especially on the origin of any of the fruits—pears, plums, apples, and so on. We will welcome any material of that kind.

REPORT OF THE NEW FRUITS COMMITTEE.

W. T. MACOUN, DOMINION HORTICULTURIST, OTTAWA.

I hoped to have seen the members of this Committee before the report was called for, and there may possibly be in the audience Mr. Palmer, of Vineland, and Prof. Crow, of Guelph. We have not written the report yet, and we hope to get together and compare notes. With the three stations now, Guelph, Vineland and Ottawa, the Province is in a pretty good position to get all useful information with regard to new varieties that can be got. For instance, Ottawa is in the coldest district, Vineland is in the warmest, and Guelph comes between, so that by testing at these three stations we can have every possible information. We have two methods of getting information, first any person who has any fruit sends it to us for examination, and if it is worthy of testing, we ask for scions and propagate it and grow it. We have been established at Ottawa for some thirty years, and we have a very large collection of seedling fruits which have been sent in to us by different individuals. So far there have been very few of them that were any better than those already on the market.

During the past year there were practically no new seedlings sent in on merit, except one peach that Mr. Hodgetts sent to me that was grown in the vicinity of Toronto—a very promising peach.

APPLES.—Of the varieties of apples we have been testing at Ottawa, there are two or three that I would like to draw your attention to as seeming to be hardier than a good many others. For instance, we find the Stayman Winesap apple to be hardy, but we do not know whether this winter will clean it out or not. Except for the year 1917 it matured very well, but this last season was short for it. I consider it one of the most promising of winter apples that have been widely tested, and I think it is worth while for any grower to plant out a few trees to find out how it will do in his district.

Rome Beauty we have found also to be hardier than most of the sorts we have in Ottawa. They can be grown in places where some of the others will not grow.

Among some of the earlier apples, a variety which was rejected some years ago in the Province of New Brunswick called the Crimson Beauty colors before any other varieties in our orchard. The Crimson Beauty will color up and be in condition for sale before any other variety in the orchard, but that is about all there is in favor of it, because it is an apple of poor quality and is not a good shipper, but it would be a good apple for a person who has a regular market.

The Red June, an early apple, grown a great deal in Virginia and the mountains of the Eastern States, does well with us, and we would suggest that the fruit growers should try some of these trees.

In addition to these we have had hundreds of varieties that we have rejected, but I expect that ten years from now some of them will come to the front, and I will send out a few trees to anyone who would like to try them. If there is any man here who would like to try one tree of a half dozen varieties of our best sorts, and if he will give me the season he would like to get the trees, I will be pleased to send them to him.

I am perfectly confident that there are quite a large number of them that will take their place some day in the catalogues of the leading varieties, but I am not booming them just now.

We have had our best success from seedlings of the McIntosh and the Northern Spy. The McIntosh apple has given us seedlings that ripen in August with the

McIntosh flavor. We have McIntosh apples in August, September, October and November, and that gives us a very long season for that type of apple.

The Melba, an August apple, and the Joice, September, are the two most promising, and I feel they are the best we have for that season. In the Northern Spy we have apples that are ready for use in October with the Spy flavor and covering the season from October during the winter. A few years ago we had practically no winter apples at Ottawa, and we have now at least 100 varieties of apples that keep all winter through, so that if they are not of use to anyone else, they are of great value to our Experimental Farm where formerly we could not keep up the supply.

PEARS.—With regard to pears we have been doing a great deal in testing the pears, but practically all the good varieties of pears have failed. Among the Russians there have been three—Kurshaya, Bessimianka and Sugar Pear—which have stayed there for a good many years and have passed through the winter successfully. Mr. Logsdaile, my assistant, has crossed these varieties with pears like the Clapp and Bartlett, and we have a large number of young trees coming on, which we hope will be blight resistant.

PLUMS.—Among plums we have not found any promising new varieties except the Mount Royal, which originated on the Island of Montreal, and it gives us a crop that we did not usually get before its introduction.

Japanese plums are not of value. There are two hybrids between the Japanese and the American, one called the Orinato and one called the Emerald, that we find distinctly better than anything else we have on the farm, and I would like to see our nurserymen get hold of some of these.

Among the strictly American plums there are several that we found very good—Brackett, Admiral Schley, Surprise, Bixby and Cheney. Our nurserymen do not seem to get these new varieties, and I think it would pay them to do so. We believe that the men who are growing American plums in the colder parts of Canada are making far more money out of their plums than any of the men who grow European plums. They come in earlier when the people are eager for plums, and they sell for twice what you can get for the European plums.

CHERRIES.—We have not found any new cherries that are suitable for our district except the Fuchi Cherry which is called the downy leaf cherry, from Northern Japan, and we have found it very hardy.

GRAPES.—We have tested a very large collection of grapes during the last thirty years to get varieties most suitable for our part of the country. There is one that was called the Rogers 24 that we got some twenty-five or thirty years ago, but it is not the Rogers 24, and seems to answer to the name of "Mary," and is very much like the Lindley, but it bunches much better than the Lindley, and is better in quality. I would be very glad to send cuts of these to any fruit grower.

We have now quite a large collection of European grapes, and they have done fairly well. A great many years ago European grapes were tried, but for some reason they proved a failure. This last season was very cool and late, and there was one variety called the Pearl Csaba which ripened three weeks before any other variety in our vineyard. It ripened the 4th of September, and we did not have any other grapes ripen until October. I do not say that would prove to be a commercial variety, but even in places where grapes are difficult to grow, some of these European varieties should be tried.

BLACK CURRANTS.—We have been introducing for a good many years a number of black currants that the late Dr. Saunders originated, and we have found in

our own tests that some of these are better than any other sorts. I might mention four of them: Saunders, Climax, Kerry, Magnus.

RED CURRANTS.—Among red currants, Perfection seems to be one of the most promising and best sorts, and I dare say most of the fruit growers are now growing that variety. It is certainly a very good currant.

STRAWBERRIES.—Among strawberries, we have not found any of the newer introduction that are equal to some of the old standbys. We have a few of our own seedlings, two of which were very promising—the Portia and the Valema. Apart from that there are no new varieties of strawberries which I would care to recommend.

THE CAR SITUATION.

G. E. McINTOSH, IN CHARGE OF TRANSPORTATION WORK, FRUIT DIVISION,
OTTAWA.

If I had been asked to select the most uninteresting, and possibly the most discouraging, subject upon which to speak to an audience of fruit growers, next to that of poor crops, I believe it would be "The Car Situation," because there is so little prospect for improved conditions, especially in so far as suitable cars for fruit transportation is concerned. The past marketing season in the provinces which had an apple crop was a trying one for the shipper, and it is extremely difficult to even attempt to suggest methods that would better conditions relative to the car situation in Canada, when we have prospective increased tonnage and little or no prospects of increased railway equipment. You will therefore realize how much more difficult it is to attempt to make even the subject of transportation interesting to the fruit grower, who, as owner of a producing orchard, is practically a forced producer of an extremely perishable product at a time when almost every wheel in the marketing machinery is disabled.

The magnitude of the railroad interests of Canada may best be shown, perhaps, by a statement respecting their mileage. Official statistics up to June 30, 1916, give an operating mileage of 37,434, an increase of 1,851 miles during the year ending that date, and nearly doubling their mileage in ten years. The situation may be further illustrated by reference to the relation of mileage to population. Europe has approximately 2,250 inhabitants to every mile of road; the United States has 395 inhabitants to every mile of railway, while in Canada we have 213 inhabitants to every mile. This indicates that proportionately to population Canada is even better equipped in railway mileage than our neighbors to the south, who are over five times better equipped than the European countries. Canada's railways date back to 1835. For the next eleven years there were but sixteen miles of railway. This increased to 2,695 miles in twenty-five years, but the largest growth has been since 1884. The year ending June 30, 1915, shows an increase of 4,783 miles, the largest yearly increase in the history of Canadian railways.

I present these figures and draw comparisons simply to place before you in a concise manner, the fact that in any failure on the part of the carriers to give the public reasonable and just service, such deficiency cannot be attributed to lack of track accommodation. It has cost Canadians something to have such railway accommodation, approximately \$125 for every man, woman and child; the land

alone granted to them exceeds the total acreage sown to field crops by 18,336,660 acres, or over two acres per capita.

Coming back to the car situation, and applying it to the marketing of fruit and vegetables, it is interesting to note that the total refrigerator car possessions for all railways operating in Canada are 4,740. To this, however, should probably be added 475 potato cars, fitted out by the C. P. R. and C. G. R., and we have 5,215 cars suitable, but not always available, for the transportation of fruit and vegetables, except for that portion which moves by express and before refrigerator protection is needed.

There are approximately 201,614 cars of all kinds in the freight service of Canadian railways, and over 100,000,000 tons of freight was handled during the last railway year, but this does not nearly represent the total amount of freight tendered. It is a fact that if every suitable car was pressed into service to-day, the railways could not move the pulpwood alone that is awaiting shipment, and some of which has been piled for three years. There are 21,000 cars belonging to Canadian railways now in the service of American railroads, while only 8,000 foreign cars are on Canadian tracks. The C. P. R. has at the present time over 300 potato cars in the New England States which they cannot get back, yet there is danger of many carloads of potatoes remaining unmarketed in the Maritime Provinces, while the turnip crop of probably 300 carloads at points on the Canadian Government Railway, for which there is a demand in Boston, is practically tied up and turnips spoiling.

It is estimated that the distribution of the 1916 Canadian apple crop alone added \$1,313,187 to the freight receipts of the railways. If this is correct, and the 5,215 suitable cars were used entirely for such traffic, each car would have an earning capacity of \$251. I do not say such was possible, but the point I wish to make clear is that there was apparently that much business offered to the railways, and if the number of suitable cars in their possession did not handle the traffic, then they were not fulfilling the terms of the Railway Act, under which they are supposed to supply the shipper with safe and secure cars to transport freight delivered by him to them.

The successful transportation of fruit is a complex problem even under normal conditions, but there is no disputing the fact that the railways have had extraordinary conditions to meet in keeping up a supply of equipment during the war period, and particularly the past year. I am convinced after my experience of the past few months in our endeavor to market with a reasonable degree of safety the apple crop of Nova Scotia, and the surplus potato crops of Prince Edward Island and New Brunswick, that everything possible was done by the different railways through united co-operation to move with a preference such commodities even to the extent of an exchange of equipment. Every railway concerned in the traffic referred to, seemed to accept their part as a national duty and endeavored to give special attention where the demand warranted, but I take this opportunity of specially mentioning the Canadian Pacific Railway, because I venture to say that only through traffic arrangements made with officials of that company whereby from time to time they released their own cars to competitive companies, was it possible to market the Nova Scotia apple crop, and I might go further and say that unitedly the Canadian Government Railway and Canadian Pacific Railway were largely responsible for preventing a very serious situation in certain Ontario and Quebec centres within the past few weeks in respect to the supply of certain food commodities.

True, regulations were made effective by certain carrying companies, particularly in Western Canada, that were not in the interests of greater production of foodstuffs, and certainly unsatisfactory to shippers of perishable commodities, as under these regulations delay, congestion and financial loss were experienced. However, on the whole, the service for the fall and winter movement has been better than was expected in the early part of the season.

The Nova Scotia apple crop the past season, as you know, was additional rail traffic, made necessary because of the British embargo, and fortunately for the growers of that province, Ontario was not a competitor, because of a light crop. This being the case, efforts could be, and were, centred on supplying Nova Scotia and British Columbia car requirements. Another year the situation may be different, but the railways will be better prepared. Last season there was an uncertainty about the permanency of the embargo, and everything was confusing. It is now pretty generally acknowledged that the British embargo will remain for the duration of the war, and consequently traffic arrangements will be made to meet the condition. It is one of the many ever-changing conditions in the present every day life, which compels the organization of a system of transportation to meet emergencies, and while perishable shipments will no doubt in the future, as during the past year, have first place in so far as freight movement is concerned, it is going to require the united co-operation of railway officials, Board of Railway Commissioners, Canadian Railway War Service Commission and Food Controller, to enable the movement of such products from one producing centre to the consuming markets of another part of the country, if it so happens that the fruit producing provinces each have a fair crop.

Nearly 2,000 carloads of Nova Scotia apples, exclusive of shipments to local points, have been moved. Of this number approximately 800 carloads came to Ontario and were distributed in seventy-one different centres; 450 carloads were marketed in Quebec, and 350 carloads reached the markets west of the Great Lakes, the balance being distributed in other Canadian and United States markets. There is estimated to be 100,000 barrels yet to be moved from the province which have been held over by the owners. The shippers of Nova Scotia responded to an appeal from the Fruit Branch to conserve cars by loading as heavily as sale contracts would permit, the result being that on the movement of the 2,000 cars no less than 470 cars were released or put into service. A few shipments were below 30,000 pounds, but the average greatly exceeded this. One car went forward by mistake with 50 barrels, while the largest contained 338 barrels, or 49,650 pounds. I bring this to your attention as an early advice for next season, and would accompany it with the suggestion that apple sales have no carload minimum regulation. This method of saving cars is most effective, as demonstrated by the action of the Nova Scotia shippers. In this connection might also be mentioned the fact that we found the car shortage the past few months was largely attributable to consignees holding cars on track under load for various reasons, not so much by the large dealers as by the smaller ones, who appeared to be using the cars for warehouse purposes. Such practice, under present conditions, is little short of a crime. The seriousness of the situation was laid before the Food Controller, resulting in the matter being dealt with by an Order-in-Council, making the following regulations regarding freight cars containing food or food products: —

(a) It shall not be allowed to remain under load at destination longer than four days after notice of arrival has been given by the railway company to the consignee.

(b) If held for a longer period than four days the railway company must notify the Food Controller.

(c) If held for furtherance order and such is not given by consignee within one day of the time of arrival, the Food Controller must be notified.

(d) After two days notice by registered mail, if the car is not unloaded or furtherance order given by the consignee, the contents will be seized by the Food Controller and sold, and after paying all charges, the balance, if any, will be paid to the consignee.

(e) The Food Controller may forbid any railway company from accepting any food or food products for transportation from any shipper whose goods have been seized.

(f) Any person guilty of an offence under this order will be liable to a fine not exceeding \$500, or to imprisonment for a term not exceeding six months, or to both fine and imprisonment.

Under this Order-in-Council, if properly enforced, I believe the shippers will have an improved service, but there are greater leaks in car wastage than in the actual loading or unloading, and the fault is upon the railways. President Willard of the Baltimore & Ohio Railway Co., says: "Freight cars in this country are upon the average under the control of the shippers 37 per cent. of the time—37 per cent. the shipper has the car, 6 per cent. of that 37 being Sundays and holidays. That leaves 63 per cent. of the time of the car in the control of the railroad. Only 11 per cent. of the total time of the car is it actually being moved. The other 52 per cent. of the time it is standing still in terminals, waiting to be repaired, being moved from the yard where the train left it to the warehouse, and things of this kind. Only 11 per cent. of the time is the car actually in motion; only 37 per cent. of the time is it under the control of the shipper, and figures show the Baltimore & Ohio is slightly better than other roads."

Cut in two the 52 per cent. of the time freight cars are not in use on the Baltimore & Ohio, and it would in effect add 22,000 cars to that railroad's equipment. An investigation along this line in Canada is probably necessary to locate the real reason of present transportation conditions. There are many who believe it is not so much a shortage of cars as it is a shortage of locomotives, to make possible a proper distribution. Probably the best equipped railroad in Canada to-day for motive power, considering its mileage, is the Canadian Government Railway, and that road has turned over some thirty locomotives to other roads within the past few months to facilitate the movement of perishable foodstuffs, munitions and other commodities.

The regulations of the Food Controller in regard to the detention of cars is a most important piece of legislation and far reaching in its effect, but I believe he could go further and give some protection to the producer and shipper of fruits and vegetables by making it compulsory for the consignee to accept shipments of perishable foods ordered by them when arriving in good condition. The practice of holding up carload shipments at destination on the least possible chance of complaint against the shipment, and then endeavor to compel the consignor to reduce the sale price, probably all because of a falling market, is not a fair business method, and is not permitted under the food control act of the United States.

Ontario apples will have to compete with Nova Scotia apples in the different markets next season. It is quite evident the marketing channels will be the same as in the past season; therefore shippers of perishable foodstuffs will be most interested in any legislation or order by the Food Controller that will make marketing

reasonably safe, and get the greatest possible service out of all available railway equipment. In Western Canada, Ontario has a freight rate advantage over Nova Scotia of at least 38 cents per barrel; from 8 cents to 15 cents per 100 pounds in Montreal and Ottawa, and proportionate rates covering the territory lying west of these points. Thus the only territory in which Nova Scotia has a freight advantage over Ontario is points in Quebec east of Montreal; the Maritime markets, Newfoundland, and possibly a few border markets of the United States. Nevertheless, if the British embargo remains, and I believe it will, I venture to say Nova Scotia apples will be a strong factor the coming season in many Ontario markets, and possibly even west of the lakes.

It was my privilege, along with the President of your Association, to oppose, before the Board of Railway Commissioners, the application of the railways for an increase of 15 per cent. in freight rates, because it was evident that those connected with the fruit industry were not realizing prices that would warrant an increase, because it was a horizontal increase, and because all railroads did not appear to require it. One railway in 1916 made a profit of 22¼ per cent. on the capital actually invested in operation. All railroads did not do so well, but is that any reason why \$40,000,000 a year should be levied on users of railroads at a time when one of the chief bodies of users, namely the farmers, the fruit and vegetable growers, are being urged to increase food production, and nearly one-half, or \$20,000,000, turned over to a railroad company not actually needing it?

Government action to meet conditions which have been hampering the efforts of the railways to provide an efficient service for the country will in all probability have to be taken in the near future. Probably the greatest thing that could happen for the shippers of Canada, particularly in view of the war-time conditions, is government operation of the railways. I do not even suggest that this step should be taken, but if the situation in Canada at the present time is such that it demands a transportation monopoly, then I do say that the only safe plan for such a monopoly is government control.

It is a fact that there is an apparent lack of adequate facilities offered by some of the railroads for handling the tremendous volume of business, and that the commerce of the country is moving under intermittent embargoes, but is it fair to say the carriers could have avoided the condition, and prevented the resulting losses to the whole country?

Prices for the necessities of life have increased, and partly because existing supplies cannot be brought to the consumer. Inadequate railway facilities may be said to have helped to prevent competition in the consuming markets, and because of this, unreasonable prices are being demanded for certain foodstuffs while there is a tremendous surplus awaiting to be marketed. This may all be true, and yet I believe the carriers are doing everything within their power to meet the situation.

Private vs. Public Ownership of railways is a big question, and as I have previously pointed out at meetings of this Association, there is a great deal to be said in favor of both, but Government operation is not necessarily Government ownership, and the present might be an opportune time to lay the foundation for a definite railway policy for Canada. The United States has recently taken over the control of its railways, and some of the immediate benefits to the shippers are as follows:—

- (1) Only companies that require financial assistance will be given such.
- (2) Equipment will be pooled and supplied where needed regardless of competitive conditions.

(3) Freight will be moved via the shortest route, regardless of giving the originating carrier the long haul.

(4) General advances in rates will not be made except by the Government itself, and concerning which the shippers, namely the citizens, the taxpayers, would be entitled to be heard. Any profits will go to the Government and not to the speculator.

(5) Since the Government will be interested in making a record for efficiency, rather than to hoard revenues, claims will undoubtedly be more quickly paid.

(6) The public interest would be first served, and a possibility of the country's expenses on transportation being greatly reduced.

(7) A great national necessity, combined with a sincere patriotic motive, must result in a great benefit to the masses.

It will suffice to say that, while the strains of the war have much to do with the present transportation conditions in Canada, the one outstanding fact is that our transportation system is at present lacking in the capacity to meet the demands of the shippers, and the resulting loss to the general public has been very large. It is also true that under normal conditions there are periods when a substantial part of the carriers' equipment is lying idle, and even now we must concede the fact that the carriers cannot prudently undertake to meet extreme and extraordinary demands.

The whole matter therefore boils down to this: We must keep our transportation facilities up to the measure of the country's growing business, and this we are told can only be done through increased freight and passenger rates, Government aid or Government control.

Before closing I might refer to some local matters. Early last season a suitable shelter was constructed at Burlington, and at the same time we had endeavored to have a shelter provided at Bronte and Oakville. The Board of Railway Commissioners ordered that Bronte should have a shelter, to be completed by the 8th of May next. If the crop conditions are such at other points on the line that they require protection, we will be glad to take the matter before the Board and also any other complaints that the growers may desire to make. Owing to the possible conditions that will exist next fall, I would like to ask the Ontario shippers to respond promptly to any request that may be sent out from the Fruit Division for statistics relative to their crop movement, so that we will be able to supply the railways at an early date an approximate estimate of the movement from certain districts, and in that way, through the National Car Service Board, we will be able to make better distribution of cars. I can assure you that the railways are united in their efforts to give the preference to fruits and to vegetables.

Next season we may experience considerable trouble in getting cars, but fruit and vegetables will have first consideration in the supply of equipment.

I would also like to suggest that shipments be made as early in the season as possible. There is a very limited number of refrigerator cars and all fruit that can be moved in box cars should be moved in that way.

There is a matter coming up at the present time as to supplying stoves in lined box cars. The question is as to whether the shipper should supply the stove or the railway company should supply it, and I would like to have the opinion of some of the shippers on that point.

MR. JOHNSTON, Forest: If the owner has to supply the heater for the cars it would be very difficult to get them back.

MR. McINTOSH: I would like to express my appreciation of the kindnesses I

have received at the hands of the officers of the Fruit Growers' Association, and I would like to take this opportunity of assuring you that the transportation work that has been incorporated into the Fruit Branch under Mr. Johnston will receive my personal attention, and Mr. Johnston intimates that it will receive all the attention that it requires, even to the extent of having more assistance. I mention this fact to show you that Mr. Johnston is sincere in trying to give each province the best possible assistance in the matter of transportation.

A MEMBER: Can you help individual members to secure payment for losses on packages? I have been trying to secure payment for losses made last August, and it may be necessary to go to the courts to get it. I think the Association should take a matter of that kind up.

MR. MCINTOSH: We have tried for a number of years to have the jurisdiction of the Railway Board extended so that they can adjudicate on claims that stand over sixty days. The Railway Board claim they have no jurisdiction, and I do not think they are very anxious for jurisdiction.

THE CHAIRMAN: We often require to put on extra help unloading cars, and then after they are unloaded they stand four or five days before they are moved by the railway company. I think something should be done to make the railway companies get more locomotive power. If the cars were moved promptly there would be more cars available. Last year the railway companies insisted that we should ship our stuff at our own risk, but I do not think this will hold water if it was taken before the courts, but still if they get a bill of lading marked in that way it gives them a long chance to bluff the shipper off.

MR. ONSLOW: Can Mr. McIntosh help us in any way to get the use of empty coal cars for bringing out manure? Every day we see empty coal cars going from Toronto, and I should think it would be possible to use these cars for bringing out manure.

Several members stated that they had ordered cars for manure but could get very few of them and some could get none.

MR. MCINTOSH: The C.P.R. have equipped 355 cars for carrying fruit and vegetables by putting lining in them, and it is possible that you will have to use some of these cars for the apple movement this fall. It is a matter to come before the Railway Commission as to whether the shippers should supply the stoves or not.

ECONOMICAL SPRAYS AND SPRAYING FOR 1918.

PROF. L. CAESAR, PROVINCIAL ENTOMOLOGIST, O.A.C., GUELPH.

In discussing this subject we shall consider first the question of insecticides and fungicides.

INSECTICIDES.

Paris Green has not been used to any appreciable extent for orchard spraying for a number of years, so we may pass it over with the remark that this year, from the latest quotations received, this poison likely will cost somewhere between 60c. and 70c. a pound.

Arsenate of Lead will be sold both in the paste and the powder form. One form seems to be practically as good as the other, except that the powder form is easier to ship, unaffected by evaporation or frost and a little easier to mix before

using. The powder form is practically twice as strong as the paste, and, therefore, costs about twice as much, but only half as much per barrel is required. It is believed that there will be a sufficient supply of arsenate of lead available. The price is likely to be for 100-lb. drum about 20c. to 25c. per pound for the paste form, and 40c. to 48c. per pound for the powder. This is much dearer than last year.

Arsenate of Lime, also called *arsenate of calcium* or *calcium arsenate*, and in the case of the Canada Paint Co.'s product—*kalcikill*—is another arsenical that is on the market this year in fairly large quantities. It is sold both in the paste and the powder form, though mostly in the powder. The powder is approximately twice as strong as the paste. Both are white substances very similar in appearance to arsenate of lead. As a rule they contain about one-fifth more arsenic, and, therefore, may be used in about one-fifth less quantity than arsenate of lead. They are also considerably cheaper. As said above, arsenate of lead this year will cost from about 20c. to 25c. per pound for the paste and 40c. to 48c. for the powder; arsenate of lime will cost from 15c. to 18c. per pound for paste and from 30c. to 35c. for the powder. Roughly speaking, therefore, arsenate of lime costs only about two-thirds as much as arsenate of lead, therefore, if safe, would be a boon to fruit growers.

HOW FAR IS IT WISE TO SUBSTITUTE ARSENATE OF LIME FOR ARSENATE OF LEAD?

In the *Canadian Horticulturist* of January last, Mr. G. E. Sanders, of Nova Scotia, speaks very strongly in favor of arsenate of lime as a substitute for arsenate of lead. After discussing the comparative merits of the two substances, he says: "It becomes plain that there is only one poison to recommend with lime-sulphur, and that is arsenate of lime, from one-half to three-quarters of a pound of the powdered material to forty gallons of solution." This is a very strong recommendation, in my opinion too strong for Ontario conditions, though it may apply all right to Nova Scotia. I am, of course, speaking only of Ontario. Every entomologist would gladly welcome a new and cheaper poison if he were sure that it was safe and effective, but he would be acting unwisely in encouraging fruit growers to adopt new insecticides before he was certain that they were safe and effective. Two years' test in one state or province is not, in my opinion, sufficient to determine this definitely. It is necessary, also, to get the benefit of the experience of others from other parts of the continent where climatic conditions may be different, because a mistake in this matter means too much loss to the fruit growers.

As for arsenate of lime, we know that it is cheaper than arsenate of lead, that it gives apparently as good control of biting insects and that it is more convenient to use with lime-sulphur, because arsenate of lead, when added to lime-sulphur, causes a black precipitate, while arsenate of lime does not cause any precipitate. We know also that it is safe with Bordeaux on practically any plant except peaches, but so also is arsenate of lead, a substance that many people, including myself, once thought safe with lime-sulphur until further experience showed that under some circumstances it would burn severely. Arsenate of lime, however, used with water alone, will burn very severely; arsenate of lead will not. I have ruined almost every leaf on a pear tree with a single application of arsenate of lime. Whether it is safe in Ontario with lime-sulphur or as safe as arsenate of lead is, in my opinion, still undecided. This week I received a letter from Dr. Quaintance, of the Bureau of Entomology, Washington, D.C., in which he expressed the opinion, based on several years' experiments, that it is practically safe on apple and pear trees, but that it is not safe on plum, cherry or peach because of injury to foliage.

Prof. Parrott, of Geneva, said he had tested it and felt so uncertain about its safety that he was going to advise the fruit growers of New York to continue the use of arsenate of lead for the present at least. Prof. Brock, of Illinois, has tested both the home-made and commercial makes on apples in 1916 and 1917 and he says: "Our two seasons' results would not warrant any satisfactory recommendation as to its use." Mr. Kydd, at Whitby, and I at Grimsby, tested it last year with lime-sulphur in comparison with arsenate of lead and lime-sulphur (Mr. Kydd used it only half strength), and in both places it caused more injury than the arsenate of lead. On the other hand Mr. Harris, of Ingersoll, had practically no burning, and in Nova Scotia where large quantities were used there was very little injury; Mr. Sanders says less injury than from arsenate of lead.

Taking all these things into account, and remembering that Dr. Quaintance, though favoring its use on apples and pears, expressly warns against using it on plums, cherries and peaches, it seems to me difficult to form any other opinion than that arsenate of lead is still for fruit trees in general the safer spray, and that it is the part of wisdom, until the matter is settled definitely, not to adopt it wholesale as a substitute for arsenate of lead. By the way most of the injury from arsenate of lime does not, in my experience, become noticeable for more than a week after spraying and, therefore, the fact that the foliage is healthy a couple of days after spraying is no proof it will remain so. I also consider yellowing of leaves just as much a case of injury as the burning of small or large areas in the leaf.

Though I am still far from convinced that arsenate of lime with lime-sulphur is as safe as arsenate of lead with lime-sulphur, I consider that because of the large number of people in Nova Scotia and some other districts who have used it on apples without injury, we should be quite safe in compromising by using it instead of arsenate of lead on apples just before the blossoms burst, because foliage at this stage is not nearly so liable to spray injury as later. The best strength to use would appear to be three-quarters of a pound of the powder form or one and one-half pounds of the paste to forty gallons of dilute lime-sulphur. For all later sprays on apples and also for all sprays against biting insects on pears, plums and cherries I think we should still rely on arsenate of lead.

As for arsenate of lead itself I believe that on apples and pears we might lessen the amount for the Codling Moth spray this year, and instead of two pounds paste or one pound powder use one and one-half pounds paste or three-quarters pound powder to each forty gallons liquid; for I do not think the Codling Moth will be very abundant this summer in most orchards, especially orchards where the crop failed almost entirely last year. This change, therefore, and the use of arsenate of lime before the blossoms will lessen the cost of orchard arsenicals considerably.

On potatoes this year, as their foliage is hardy, I should use about one and one-half pounds arsenate of lime powder or three pounds paste, either to forty gallons of Bordeaux mixture or to forty gallons of water, the latter containing about six pounds of freshly slaked stone lime or eight pounds of hydrated lime. The lime is used solely to prevent burning.

FUNGICIDES.

Bluestone this year seems likely to cost about 14c. to 18c. a pound in fairly large quantities. I might mention here that there are a number of fruit growers who prefer Bordeaux mixture to lime-sulphur. There is no doubt that it adheres better to the leaves and fruit in wet weather and were it not for the fact that it is less convenient to use, costs more and russets the fruit badly some years, there

would be few good reasons for preferring lime-sulphur to it for any but the first spray. It is the Codling Moth spray, as many have known for years, that causes most of the russetting, and so it would be wiser to use lime-sulphur for it.

Lime-sulphur will likely be available in sufficient quantity this year but will, I think, cost at least \$1.00 a barrel more than last year.

Soluble-sulphur is also available and wherever there is difficulty in securing a sufficient supply of lime-sulphur, especially in San José Scale districts, could be substituted for the first spray, and if thoroughly applied will give good results. I do not recommend it for any later spraying and consider it unsafe to use with arsenate of lime or any other arsenical.

DUSTING.

It is with a good deal of diffidence that I discuss dusting. There is no doubt at all that this is a wonderfully rapid and easy way of treating an orchard for insects and diseases. It is on very large trees about seven times more rapid than spraying even with a power outfit. On smaller trees the difference of time is not so great. In my own experiments the cost of the two methods has been on large trees about equal, but most people will find dusting more costly, that is when taking into consideration the materials, time, and labor. If other work, as will be the case this year, is very pressing the value of the time gained may more than compensate for any extra cost.

If I were to judge from my own experiments of the last two years I should speak very highly of dusting, because it has given me excellent results, just as good on the whole as the liquid lime-sulphur and arsenate of lead. From Nova Scotia, New York and Michigan I have also received word of some men having this year very good results; on the other hand there are many reports of failure. It seems to be the general opinion, and it is also my own opinion, that under conditions very favorable for scab development dust is inferior to the liquid. I believe this is chiefly because it washes off much more easily as a rule. I think, however, that in an ordinary year, in a well-pruned orchard not kept dark and also damp by dense windbreaks, the dust will prove satisfactory if well applied.

My experience would lead me to favor doing the dusting from at least three sides, and if possible from four. One of these sides should be done with the wind. A strong wind is not, however, very desirable as a rule for dusting. A good deal of practice and study is necessary to dust thoroughly and rapidly. It is also of very great importance to apply the dust at the right time: the spray calendar should be consulted for this. If the foliage is moist the dust adheres better, but we often cannot wait for this condition.

Whether any dust can be relied upon to control San José and Oyster-Shell Scale I am not prepared to say. I thoroughly controlled San José Scale myself last year on forty-eight large apple trees with soluble-sulphur and talc dust, but was fortunate in having the trees just moist enough to dissolve the dust immediately and yet not wet enough to cause it to run off.

Where San José Scale does not occur and Oyster-Shell is not abundant, I should recommend that the first dusting of apples should be when the leaves are about the size of a ten cent piece. No poison need be used in this application. Any extra application besides the regular ones just before and just after bloom may be given without poison to save expense. I should prefer this year to buy nearly half the dust without poison. This will reduce the price more than 50 per cent.

OMISSION OF SOME OF THE REGULAR APPLICATIONS OF SPRAY MIXTURE.

Where fruit growing is a man's business I should advise that all of the regular standard applications as stated in the spray calendar be given, in fact I think no good fruit grower should try to do with fewer than these standard sprays mentioned there; but when grain and stock raising are combined with fruit growing and all cannot be properly attended to it is clearly, because of the war, one's duty to give the grain and stock the preference. In such cases power outfits and the spray gun or a duster might be purchased to overcome the difficulty, otherwise it would be necessary for such persons either to omit spraying altogether for this year or else to give only one or two applications. In any district, except where San José Scale exists, *the most important spray is the one just after the blossoms fall*. Some years this one alone will give fruit almost free from scab and worms. *The next most important is the spray just before bloom*. These two sprays will most years, but not every year, give almost perfectly clean fruit. The spray before or as the buds are bursting is of course all important for San José Scale and for Oyster-Shell Scale, and, also, some years for Apple Scab.

With these facts in view every person can judge for himself which sprays it will pay him best to omit on his orchard.

USING A WEAKER MIXTURE OF LIME-SULPHUR FOR THE FIRST SPRAY.

Most Ontario apple orchards are free from San José Scale and nearly free from Oyster-Shell Scale; hence in such orchards I see no good reason why the first application of lime-sulphur should not be greatly weakened and the dilution be made about one gallon to fifteen gallons or even twenty gallons of water instead of one gallon to seven. This would mean a saving of over forty cents a barrel on the diluted mixture. I should also advise that this application be given just after the buds have burst instead of before they burst, as this will be a more effective time in preventing early infection from apple scab.

Q.—Is arsenate of lead any good after it is frozen?

A.—I would never throw away arsenate of lead because it was frozen. It becomes a little coarser in its texture and it will not spread so nicely all over the leaf, but otherwise the poison is there just the same as before it was frozen.

Q.—Is arsenate of lead all right with the Bordeaux mixture?

A.—Yes. I should say you could go right ahead and use it on potatoes. If you will add about six pounds of freshly slaked stone lime or seven or eight pounds of hydrated lime, you would make a saving over Paris green, because it will be dear this year.

Q.—What about side worm this past year?

A.—The natural instinct is to go to the apple. Therefore, if there were only five apples last year to twenty the year before, and if there were twenty moths in the spring to go to the five apples where the previous year they came to twenty apples, that is the reason there were so many of them in the apples. The small number of apples drew the moths, and the apples were attacked four or five times as severely as they would have been in ordinary seasons.

The codling moth came out very late last year and we had hardly any second brood. The little fine hairs that are on the apples in the early stage had got off by the time the codling moth came out.

DR. GRANT: There is a powdered form of lime-sulphur on the market?

A.—Yes, but it has not as yet made any headway, and I do not know much about it.

MR. KYDD: What pressure is necessary for the operation of that spray gun?

A.—About 200 pounds pressure.

THE CHAIRMAN: One hundred and seventy-five pounds pressure is sufficient.

PROF. CAESAR: The cost of this gun is rather high. It is about \$20.

MR. KYDD: Is it necessary to spray the under side of the leaf as well as the upper side?

PROF. CAESAR: Mr. Saunders says that if you spray the under side you destroy the foliage, and a number of you would have lost your trees long ago if that was correct.

DR. GRANT: Is there a little more danger of burning?

A.—Yes, with the high pressure there is a little more danger of burning.

Q.—Would the ordinary hired man move fast enough to operate that gun?

A.—The man has a chance of taking a stand as he comes up to the tree, and all he has got to do is to move slowly, but the thing is, will he be thorough enough? The whole matter comes down to a question of thoroughness.

Q.—How about getting into the blossoms that are pointing upwards?

A.—It will control the blossoms very well. If you have a tree wider than this room and you try to spray it from one side without much wind, it is hard to reach right through with the ordinary nozzle, but if you have one of these guns you can stand out from the tree and put the spray right through it.

Q.—Would not there be considerable waste?

A.—I have only used it on thirty trees, but I am told that there is no waste.

THE CHAIRMAN: I was at the Rochester Convention, and they use the gun over there much more than we do, and it was stated by the growers there that they use less material with the gun than by the old process.

Q.—Does not the sprayer need to be more accurate?

A.—The best way to find out how these things work is by trying them. If I had an orchard, unless it was an orchard especially favorable to scab, I would rely on the dusting, but I would not use it where there was San José Scale. I am not recommending it, and I am not hitting it. I cannot go any further than that. I know a number of men who are fairly good sprayers who are not getting results with dust, but I know that I have gotten splendid results with dust. I do not know whether the hired man is going to make the most of it or not.

Q.—Do you think the dust is quicker than the liquid if it is applied with the gun?

A.—Yes, I should say the liquid applied with the gun is only one-third as fast as dusting.

COMMITTEES.

The following committees were appointed:

RESOLUTIONS COMMITTEE: DR. A. J. GRANT, Thedford; W. H. BUNTING, St. Catharines; R. B. WHYTE, Ottawa, and ELMER LICK, Oshawa.

NOMINATING COMMITTEE: A. W. PEART, Burlington; A. ONSLOW, Niagara-on-the-Lake. THOS. ROWLEY, Leamington; T. CARPENTER, Winona.

THE WORK OF THE FRUIT AND VEGETABLE COMMITTEE OF THE FOOD CONTROLLER'S OFFICE.

D. JOHNSON, FRUIT COMMISSIONER, OTTAWA.

I appreciate the fact that the Food Controller's Office is not popular, and that this is not a popular subject to bring before the meeting, but I do not believe any office has been more abused and misrepresented than this very office. I believe they have honestly striven to carry out their duty and do their very best to help out in the conditions which exist.

When the Food Controller was appointed to office the public immediately expected that they would get cheap food, and when the prices did not go down they immediately began to misrepresent the Food Controller. The public failed to realize that there was a very great shortage of food. The food situation is so critical that it is impossible for the Food Controller to reduce prices to any very great extent. The food shortage is caused by the shortage of men to do the work on the farms. It could not be otherwise, when one realizes that 40,000,000 men who formerly were engaged in production have withdrawn themselves from production, as far as food is concerned, and have become heavy consumers and destroyers of food. It has been the history of war that famine follows in its footsteps. I do not wish to be sensational, but I must tell you that conditions are very serious.

The consuming public wanted the price of apples to be fixed at \$3 per barrel. They wanted the price of butter placed at 25c. per pound and eggs 25c. per dozen. If Mr. Hanna had fixed the price of food at such prices the people would have said that Canada had found a great man, and they would have had more money to spend in 15c. shows, and to go to the theatres, and to buy automobiles.

A very large percentage of the city people look upon the farmers as profiteers. When we try to explain to them that it costs more to produce these things than it did in years gone by they say: "It is all very well for you to talk in that way, you are in league with the interests, you are in with the producer and you don't care a rap about the consumer." I remember on one occasion a man came into the office and he said: "Is this the Food Controller's office?" I said: "Yes." "Well," he said, "it is a very queer office," and I said, "What is the trouble?" He replied, "Well, I had to pay 40c. for a dozen eggs just right below your office, and in years gone by I used to get eggs for 10c. per dozen, and it is not any greater effort for a hen to lay an egg than it was a few years ago." And he meant it. I tried to explain to him that it cost more to produce an egg now than it did some years ago, and he said I was in league with the interests.

It is the same with fruit, they want it for a small sum, they don't want to pay the cost of production. When I went to the office first I heard all about the fruit growers. The people kept telling us that they were nothing but profiteers. They told us that they used to grow berries at 5c. and 6c. and now they are asking 15c. and 18c. They assured us that all you had to do was to go out and pick the berries, and that you only paid the girls one and two cents a box for picking them. They said that if the Food Controller would put on restrictions he would force these people to reduce their prices. Mr. Hanna was altogether too wise to interfere with production in that way. He realized the fact that production must be kept up. He realized that it did not matter how much money the people had, if they could not buy food they could not live.

Shortly after Mr. Hanna was installed he went to Washington to meet Mr. Hoover, head of the United States Food Administration, and they together formu-

lated a policy, which was this: That they would start a campaign throughout the country for the conservation of food and also to ask the people to substitute vegetables in the place of wheat and beef and bacon. On his return to Ottawa he asked me to give some attention to fruit and vegetables. After discussing the situation thoroughly we decided to follow in the footsteps of the United States Department and to form a fruit and vegetable committee. We wanted on this committee not only men who understood fruit and vegetables, but also men who had business experience and who understood something about the marketing of fruit and vegetables.

After some consideration we asked Mr. Robert Robertson to represent British Columbia. He is a brother of Dr. Robertson who was formerly Commissioner of Agriculture for Canada. Some years ago Mr. Robertson was manager of the United Fruit Growers of British Columbia, and handled a great quantity of fruit. Of late years he has been an importer of fruit from the Orient. We did not think we could get any man who know the business better than he did. For the great prairie consuming market Mr. F. M. Black was asked to serve. He was president of the Calgary Board of Trade and treasurer of the Grain Growers, the largest co-operative concern in America. In former years he was connected with P. Burns & Co., having direct charge of their retail stores. He was asked to serve for the purpose of representing the consumers, and he did represent the consumers. He was very much concerned about the welfare of the consumers. For the Province of Ontario we asked our good friend Mr. Hastings to act, and he has proven to be a most able man and we value his services very highly. Professor Cummings was appointed for the Maritime Provinces. He is Deputy Minister of Agriculture for Nova Scotia, and head of the Agricultural College for that Province.

Knowing the value of transportation in connection with fruit and vegetables was important, we asked the Railway Commission to appoint one of their members to assist us and they appointed Mr. Spencer, Chief Operating Officer of the Railway Commission, and I want to say right here that Mr. Spencer has proven one of the most valuable members of our committee. He did not know much about fruit or vegetables, but he did know about transportation as perhaps no other man in Canada did. He has been able, in co-operation with Mr. McIntosh, to do a great deal of good. The troubles we have had to contend with in the matter of transportation have been very great. One of the most serious troubles this country has had to face this year has been transportation.

We were not able to get this committee together until about the 1st of September. By this time the fruit crop was pretty well all harvested. And all we could do then was to hear about the high prices that you had charged the people. The committee first of all gave their attention to the producers. We knew that the apple crop was almost a failure in Ontario and Quebec. We found by that time that British Columbia had sold her fruit, and Ontario had also sold a large proportion of the crop, and it was decided not to do anything to regulate the price of apples so far as the producer was concerned. It was felt by all that the producer should be encouraged to produce, and that it was more important that the production should be kept up than that a less price should be paid by the consumer.

One reason why we decided to take in the wholesale dealers was that we were told that they were profiteers. We went into the affairs of the wholesale fruit and vegetable dealers very carefully, examined their accounts and their method of doing business, and I only wish we were at liberty to give to the public the conditions that we found to exist, but it was a private inquiry and I am not at liberty to go into the details. I can only tell you that the wholesale fruit and vegetable dealers of this country instead of being profiteers are up against it, and are not taking any

unreasonable toll from the public. Possibly you will not believe that and you will think that some of these wholesale houses are making an enormous profit. But on investigation we found that their expenses had risen just in the same proportion as everybody else, and in addition we found, on careful inquiry, that it cost them about nine per cent. to do business, and the average gross profit to the dealers of Eastern Canada is about ten and one-half per cent., so that they are not making more than two and one-half per cent. profit on their turnover. When we consider the perishable nature of the product they handle, and the climatic conditions they are up against, frost and rain, and hot and cold weather, and when we consider how this profit may be turned into a loss, I think you will agree with me when I say that their profit is only moderate.

Mr. Hanna sent out a circular to the wholesale dealers saying that he expected their co-operation, and that he would not stand for big profits, and that if they would not co-operate he would establish his own distributing centres throughout the country. Our committee decided after this investigation that it was quite impossible for any Government to distribute fruit and vegetables more cheaply than it was being done by the wholesale dealers at the present time. There are a few places in which expenses should be kept down, such as the duplication of travellers and things of that kind. There are honest and dishonest dealers, but the majority of the dealers have not been taking an unreasonable toll during the past year. We decided, however, to put in a certain regulation so that these dealers could not unduly speculate on the fruit and vegetables. Every wholesale dealer must be a speculator to some extent, he must buy a supply to carry him over for a week or so. But he must not buy a large supply and keep it until the price is twice what he paid for it.

It was also decided that every wholesale house in the country should be registered, and placed under license and only reliable houses will receive a license. If they fail to carry out the regulations which the Food Controller passes from time to time these licenses will be taken from them.

A great deal of attention has been given to potatoes. They were of more importance than apples to the public. We put forth efforts to try and find out what quantity of potatoes were in the country, and we found that there was a very large crop of potatoes in Canada. There was a big surplus of about ten million bushels in the early fall. In the United States there was a surplus of about one hundred million bushels over the average production. It was expected that the price would look after itself. However, transportation difficulties were such that the United States people were not able to get their potatoes to the market. There are certain parts of the United States that have huge stores of potatoes that they are not able to move. The potato dealers cannot get cars to move the product. Parts of the New England States have not been able to get cars and they have come to Nova Scotia and purchased potatoes.

We have to-day in Prince Edward Island two million or more bushels of potatoes. Mr. Baxter, of our office, has been in Prince Edward for some time trying to work out a method of distribution for them. Their railway line is a poor affair, and for ten days and a week it has been snowed under. I look forward to the day when the transportation facilities of the Island will be good and that fertile spot will have a chance to dispose of its products. There is still a large surplus of potatoes in Canada and I am expecting to see a break on the market any day. If I had any potatoes I would sell them because I expect to see a serious break in the market.

I have been asked a number of times as to what I think of the prospect for

marketing fruit in 1918. I do not think it would be wise for me to say what will happen to the fruit crop of 1918. The general opinion is that we are going to have a huge crop of apples in Canada next year, I am not looking for a very large crop, and my reason is this: the farmers are not looking after their orchards as they formerly did. They are looking after their cows and the milk and the hogs and poultry and other things, and I think that is quite right. Under the present condition of the labor market they are not able to get the necessary help to look after everything, and they look on fruit as a sort of speculative crop. Last year we found that the orchards were everywhere neglected, and the farmers told us they had not time to attend to their orchards. I am sorry, I hope they will find time to attend to their orchards, because they must be attended to.

We should give every possible attention to the orchard; because if there is a big crop of fruit next year it will only be the good fruit that has been properly sprayed and looked after that will be in demand. To the commercial fruit grower, who is of necessity tied up in his orchard, I would say to him, "give it every attention." If I were talking to a mixed farmer, and knowing the conditions as they are to-day, knowing that there is an embargo against shipping apples to England, I would say to him: "Give the very best attention you can to your hogs and the dairy and the poultry, and if you have any time left over give that to the orchard. Perhaps that is not a wise thing for a fruit grower to say, nevertheless, that is the wise thing to do. We are under war conditions, and food is becoming essential. We are told that the world is very short of food. Only a short time ago France had only three days supply of food ahead. That is a very serious position. I realized what it meant the other day, when I found myself standing in line in Ottawa to get 200 pounds of coal from the Fuel Controller. That was bad enough, but what would we say if we had to stand in line to get a loaf of bread, and something to sustain our families for the next 24 hours. That is about the condition that exists to-day in Italy and France.

In conclusion, let me say a word or two about production. If you have any land available I would urge you to put it into crop and do something to produce food. You are sure of a good price. I know you are all patriotic, but I simply throw out this suggestion in the hope that you will do your best for the coming year. The Government are very anxious to have the people produce just as much as they possibly can during the coming year. We also want to urge you not to waste food. It has been said that there is a great deal of food wasted in the city, but now that the city people have to pay such a high price for everything they are more careful, and do not waste as much as formerly. Sufficient goes to waste on many farms to keep a house supplied with certain kinds of food. We have some startling evidence as to the amount that goes into the garbage can. It is something like \$75,000,000 worth each year. But the waste on the farm is far more than in the city.

I believe the Food Control is going to be one of the greatest elements in the marketing of the fruit crop of 1918. The policy of the Food Controller is to induce the people to eat more fruit and vegetables and to save other foods for export. He is introducing a campaign to that end. I believe by the time next year's crop comes on the market the people will feel it their duty and they will feel that they are almost traitors to their country if they do not substitute fruit and vegetables for other foods. There is no reason why we should not be able to dispose of a tremendous quantity of fruit this year. It was supposed

that it would be impossible to market the apple crop of Nova Scotia last year, but it has gone into the market at enormous prices, and because of that they have one hundred thousand barrels of apples down there. People will not buy apples at \$7 and \$8 per barrel. If they had been priced at \$4 they would have been all sold. Down on the street that I live on in Ottawa nobody has had apples this winter because they cannot afford to buy them at the price. There was imported into Canada nearly five hundred thousand barrels of apples this year. That was American fruit for which we paid the outside price. These apples were sold at \$3 and \$4 per box. If the prices had been moderate I believe the consumption of fruit would have been enormous. I am looking for a good market for fruit the coming season, and I trust that you will all do your best to produce more food during 1918 than you ever did before.

THE LICENSING OF THE FRUIT AND VEGETABLE TRADE.

J. R. HASTINGS, OF THE FOOD CONTROLLER'S OFFICE.

The subject which I have been asked to discuss with you to-day is one that at first glance does not appear to be quite at home on the programme of a fruit growers' meeting, but on a closer view we will find that certain phases of it have a very direct bearing on the fruit and vegetable industry, and the licensing system as applied to wholesale fruit and vegetable handlers is, therefore, a fit topic for this gathering. It is an entirely new subject, and has never been discussed at any previous fruit growers' convention in Canada. Reference to it has frequently appeared in the Press during the past few months, and some of the Press statements have caused no little confusion in the minds of dealers who may be included in the licensing system and have brought a good deal of unnecessary work to the Food Control office. I have a clipping here, taken from a prominent Western Ontario paper, which speaks of "Complete Revolution of Methods—Drastic Regulations Affecting Dealers in Food Products," etc.

This is news to the Food Control Department, and while certain regulations are already in operation and others under consideration, no revolution in methods or drastic regulations are in contemplation. If the dealers themselves have any drastic regulations in view, they have not been communicated to the Food Controller. The Licensing System is evolutionary—not revolutionary; constructive—not destructive.

The system as applied to handlers of food produces is, so far as Canada is concerned, purely a creature of war conditions and is still in the formative stage. In none of the countries by which it has recently been adopted has it attained that degree of order and efficiency which is its goal and which time and further effort will enable it to reach.

I will not attempt to tell you what has been done by way of licensing handlers of food products in other countries or to what extent it has aided the Food Administrators in dealing with food problems, but will spend the short time that has been allotted to me in giving you a hasty sketch of this phase of Food Control so far as it applies to our own country.

Canada had been nearly three years an active participant in the great conflict, and had been bearing a burden of tremendous proportions before the serious side of the food situation and the ultimate part it might play in the final result

was driven home to our Government with sufficient force to cause the creation of a Food Control Bureau, and not until June, 1917, was a Food Administrator appointed. Much has been accomplished. A world of valuable work has been done since the first dawn of Canadian Food Control. Many experiences, some serious, others ludicrous—a few annoying, have been met with since the moment Mr. Hanna, realizing the importance and difficulties surrounding the task to which he had set his hand, looked over his spectacles at the two men whose assistance he had first asked and said: "Well, boys, where do we begin?" Some day, I dare say, the history of our "food control" will be written, and if undertaken by a master hand, free to gather material from the almost innumerable volumes that will be necessary to contain the curious fragments—wise and otherwise—that will have drifted into the Food Control Department, a book of rare and surpassing interest should result.

The licensing system is only one of the factors affecting food control and by no means the most important. Increased production—food, more food, and still more food, is overwhelmingly the paramount consideration of the Food Controller, and will, I feel, become the watchword of every true Canadian as soon as the seriousness of the food situation so far as it concerns the Mother Country and her allies is understood and the grave responsibility that rests upon us to save them from possible starvation and disaster are fully realized. What I am now saying may be a trifle apart from my subject, but it is difficult to discuss the licensing system without, at the same time, considering this all important phase of the food question. And, moreover, I feel that no possible opportunity such as that presented to me now, should be lost to emphasize the tremendous individual responsibility resting upon us as food producers to do all that is humanly possible to not only produce but conserve food products.

In discussing the food question with Dr. Jas. W. Robertson in Ottawa a few days ago, I asked him if the situation is really quite as serious as some of the reports reaching us indicated. He replied: "Yes, more serious—it is alarming!" Dr. Robertson is, as many of you know, one of the outstanding men of the Dominion, and is one of the best authorities on the food question in Canada. A statement of that character coming from Dr. Robertson, with his well-known reputation for caution and accuracy, should be sufficient to remove from our minds any doubt that may exist as to the true aspect of the food situation.

Next in importance to food production is food conservation, and here is found a useful and most fertile field for the operation of the licensing system. As I have already stated, this branch of food control is still in the making, and some months of careful and patient work will be required to bring it into orderly and efficient operation. It is the opinion of the men best qualified to judge, that the system of licensing all handlers of food products has come to stay, that the old order of things has passed not to return again. The aim of the Food Control Department in dealing with the matter is to build up a structure that will, in these days of stress and strain, aid the Food Controller in the conservation of food products and ensure their distribution in the most efficient and economical manner possible and in the years to follow be a useful and ready medium for promoting and fostering more wholesome trade conditions.

During war times the licensing system will enable the Food Controller promptly to make effective any regulation he may deem advisable affecting prices and the handlers of food products, and it will be a powerful and ready weapon in dealing with any abuses that may be attempted by licensees. The day of the

so-called profiteer has passed, and it might surprise some of the men and women who have become obsessed with the idea that the average middleman is a sort of highway robber, to know just how little profiteering in foodstuffs has actually taken place in Canada since war was declared. Be that as it may, the day of the speculator in food is done, or shortly will be, and speculation as such will soon be a thing of the past. This statement need not and will not bring a tremor to the pulse of the fair dealing middleman, and I hope, since it may be taken as a fact, that it will offer a grain of comfort to the consumer. I am of the opinion that the most drastic regulation that dealers in food products will be confronted with will be based on something like the following:—

Licensees must bear in mind that excessive profits will not be permitted and the goal of the year's business must be a fair and reasonable profit above legitimate expenses. Whether or not the Food Controller will fix the maximum profit the fruit and vegetable dealer will be allowed to take, I cannot say, but I feel quite at liberty to make this statement, that if a maximum profit is named—and it is only reasonable to suppose that profits will be limited in some way—that any regulations which may be enacted affecting dealers' profits, will be found reasonable, fair alike to producer, dealer and consumer. With this simple regulation in force, the temptation of a licensee to load up with a view to obtaining speculative and excessive profits, will be removed. The rule, however, will not prevent a licensee from laying in at any time a sufficient supply of any food product that may be necessary to cover his normal requirements during the usual season of distribution, provided, of course, conditions do not make it necessary for the Food Controller to limit the quantity of any food product a licensee may be permitted to have on hand. Other regulations than those dealing with profits will doubtless from time to time be made with a view to eliminating whatever wasteful, unfair and uneconomic trading practices may exist—regulations of a constructive character having for their object the general good of the trade, and since the taking of excessive or undue profits will be eliminated, this will mean the cutting down of the difference between the price the producer will receive and the price the consumer will be required to pay, to the minimum.

Several branches of trade handling food products have already been put under license and it is the intention of the Food Control to pursue the work until all food handlers—retail as well as wholesale—have been included in the licensing system. It is no light task but if it succeeds in clearing up and rendering more economical and efficient the channels of food distribution, to the extent that its advocates confidently anticipate, the labour of organization will not have been in vain. There are many ways in which the Licensing Bureau of the Food Control Department, when fully organized and in smooth running operation, will be able to work in co-operation with licensees, to improve some of our present trade conditions, and the fact that dealers will be licensed and under the direct control and supervision of the Food Control Administration will enable them to organize in a way that heretofore would have been viewed with an eye of suspicion.

In the case of the wholesale fruit and vegetable handlers, a nominal license fee is required, and it is the purpose of the Food Controller in all cases, to exact only such fees as will add no appreciable tax on the licensees, and only sufficient in the aggregate to meet the cost of License Administration. Up to the present time, each branch of trade handling food products is being licensed separately, but it is likely that when a co-ordinated system, which is now being worked out,

is put in operation, a general license covering several lines of food commodities, will be issued and an adjustment of fees made.

I will now for a few moments refer to the Food Controller's Order of December 13th, 1917, under which the wholesale fruit and vegetable dealers were brought under the licensing system, and explain a few of the features in which we, as fruit growers, are interested. The wholesale fruit and vegetable men have been a difficult class to deal with in the matter of licensing, and in order to cover them and the various functions performed by the fruit handlers from the apple orchards of Nova Scotia, to the fruit growing sections of British Columbia, it seemed necessary to have two classes, one class having three divisions, and the other, six divisions.

Notwithstanding these numerous divisions, and the apparent conflict in a few class definitions, it has been rather surprising how readily the majority of the applicants for licenses have dropped into their proper divisions. On the other hand, there have been many and rather complex points to deal with, necessitating a very heavy correspondence, but it is felt that so far as it has gone, the licensing system has on the whole, worked out very satisfactorily and promises to bring gratifying results and attain the objects intended.

I may say that the licensing I have been dealing with should not be confused with the license or permit system under which export shipments of foodstuffs and certain other commodities are now made and as this may be considered as belonging to licensing I will refer to it for just a moment.

By an Order-in-Council dated November 17th, 1917, entitled War Measures—Prohibited Exports, a long list of items were included which shippers could not ship out of Canada without a permit from the Food Controller. The reasons for this Order are given in a letter sent to shippers from the Export Department of the Food Control Office, which reads in part as follows:—

The United States in order to exert their full force both in a military and commercial way so far as this war is concerned, put into force an export license system whereby every ton of foodstuffs leaving the United States could only do so on obtaining a license and then only to specified destination. It became necessary for Canada to follow suit in order to make the North American continent commercially watertight and give Canada a similar control of exports so that no goods of Canadian origin or of United States origin passing through Canada could leak out to the neutrals or allies without armies in the European fields. In other words it was the purpose of this measure to eliminate all possibility of certain commodities reaching Germany or her allies, and although over 4,000 permits have been issued, representing 4,000 separate export shipments, it is safe to say that none of these reached a destination not agreeable to the United States and Canadian authorities.

This address was followed by an interesting discussion regarding possible conditions should the war continue.

THE APPLE SITUATION FOR 1918.

J. G. ANDERSON, LUCKNOW.

Regarding the apple situation and the outlook for 1918, I look upon it as a most unfortunate circumstance that Ontario has had three poor crops in succession. Not only has the quantity been small, but to say the least, the quality has been

for the most part indifferent. This circumstance has given the western box apple a position in markets of the Prairie Provinces which they would not have had, and it will be exceedingly difficult for Ontario apples to regain the standing they formerly held in these markets.

Should Ontario, Nova Scotia and the western box districts all have a crop of apples the coming season and with the export embargo still on, the problem of finding a market for all of our Ontario crop would certainly be a very difficult one, and in that event prices would consequently be quite low.

At the present time the demand for any kind of apples is very limited in this market, and I notice that Toronto and Montreal are also very much lower in price than they were two months ago.

I think it was very unfortunate for the trade that the price of Nova Scotia barrelled stock was forced up to the high level it reached during October and November last. Had the price been kept within a reasonable limit, the crop would have gone into consumption. Instead of that I am informed there are large stocks held in Ontario and Quebec costing the dealers very high prices, also large quantities still in store in Nova Scotia and it would not be surprising if prices show a decided decline before stocks are all cleaned up this spring.

You are aware that I have never been a very great champion of the box as a package for Ontario apples. I will not say that I have changed my mind, yet it would appear that it would be advisable to use the box for a proportion of the crop. It may be that ultimately the box will replace the barrel. I would not think so, however, and I certainly would not advise a change from the barrel to the box all at once. Let the change be made gradually, and no doubt the markets will take more and more of our apples packed in boxes each year.

One of the hardest problems the apple grower will have to face this year will be the labor shortage. It is very important that western shipments of apples be completed as early as possible. Shipments to western points should be on their way in October or very early in November, and yet I know with the shortage of labor and also shortage of refrigerator equipment on the railways how difficult it is to have this done.

ELMER LICK, Oshawa: It is not my intention to take up much time discussing the crop that we may have this fall. There are two or three lessons that we have learned in the past, that is if we get a good quality of apples there is no trouble in selling them. I was speaking to a gentleman interested in fruit this morning, and I asked him "Is it possible for us to box our apples until we get more labor to help with our orchards?" It must be recollected that for five or six years we have been going down hill in regard to the quality of apples that we have been producing in the Province of Ontario. They have been getting poorer and poorer. I attribute a great deal of the trouble to lack of labor, insects and fungus diseases. If we get the kind of apples we have been getting the past few years we had better not attempt to put them up in boxes because it only brings disaster. I regret that we have not the same hold on the western market that we had on account of what has been done in the last three years. We have not been able to supply the quality of apples that the people in the west require. Whether we will be able to hold that market or not is a very serious question, and one that will call for a good deal of consideration. I said eight or nine years ago that the time would come when we would have apples at 50c. a barrel on the trees and with labor conditions so that we could get them on the market so as to advertise ourselves in the west. We have not had that condition for some years. I am not discouraged, but I feel like Mr. Johnson, and would

tell the farmer to grow feed and look after the orchard if he can. If you have a nice young orchard, of course you will have to look after it, but we have so many of these old orchards in the country that are not properly looked after. I believe that if we get a big crop of apples that some solution will be found.

H. T. FOSTER: I do not see that we have any guarantee that we will have a bumper crop in 1918. It does not strike me in that way at all. We have not had a crop of apples for the past two years, and one would naturally think that we would have a good crop this year, but considering all conditions I do not believe we will have a big crop. If we do have a big crop there will be ready sale for the good stuff. A great number of orchards have not been taken care of during the past six or eight years, and labor is harder to get this year than the past year. Therefore the percentage of good stuff will be small, and there will be no trouble in finding a market.

THE CHAIRMAN: I quite agree with what has been said as to there being a market for good apples, but our experience has shown that if we have a poor crop for two years we are sure to have a big crop the third year.

R. W. GRIERSON: Nova Scotia and Washington had a good crop last year.

THE CHAIRMAN: The crop was poor in Ontario and also in the State of New York. I travelled through the apple section of New York State last year and I was surprised to see the number of apple trees without any apples on them, and to see the trouble the fruit growers were taking with their orchards. The trees were set 40 or 50 feet apart and were well pruned and taken care of. I believe these trees will be as full of apples as possible this year, and I believe the price in this section will be very low.

DR. GRANT, Thedford: As long as I have been connected with fruit growing and as long as I have been attending conventions that same old question comes up, What will we do with the next crop of apples? It is the same old story "counting the chickens before they are hatched." I think I can safely say I will take my chances of marketing the good fruit if we have a big crop this year. A great many things may happen between now and the apple harvest. We thought we would have a big crop in 1916, and it was one of the lightest crops we ever had. Orchards that have been properly looked after will likely produce a big crop but I am afraid a great many orchards have not been looked after and they will not produce a big crop. I would not predict a big crop of apples for this year. There is no question but what the consumption of fruit in this country will be very great. I don't think our people have been educated to eat home grown fruit, but if we have the crop we will be able to dispose of it, and at good prices.

MR. ONSLOW: What about the poor stuff that won't keep?

DR. GRANT: Don't grow it.

MR. ONSLOW: Would it be possible for the Government to encourage the evaporating of it?

THE CHAIRMAN: We have a number of orchards that are not in first class condition, and that has a bad effect on the whole crop. Evaporated or canned apples could be exported, and would be very beneficial to the soldiers in France, and anything that the Government could do in that line would certainly help out.

MR. GILBERTSON, President Norfolk Fruit Growers' Association: I have been very much interested in the discussion that has taken place as to the apple crop. This year we had only about 2,000 barrels, and we have had more difficulty in disposing of these 2,000 barrels than we had in disposing of 50,000 barrels in other years. We are looking for an increased crop this fall. It has been said

that the outlook is not very bright, but we do not look at it in that way. We had our annual meeting last week and interest is dying out, and has been dying out in our Association for two or three years. Weather conditions have not been favorable to the production of a good crop of apples, Mr. Johnson seems to think that the man who takes good care of his orchard and produces good fruit will find a ready market at good prices. A good deal of the trouble in recent years has been the small crop and low returns. I think the fact that our annual Fruit Exhibition has not been held for some years now is having an effect and producing a lack of interest.

THE CHAIRMAN: I quite agree that the man who takes good care of his orchard for the next few years, will make money. He may not make much at the present time, but he will pay expenses and will reap the good profit in years to come. He will at least have the satisfaction of knowing that he is producing food that can be consumed at home, and that he will be helping to win the war. We have got to use all our energy towards winning the war regardless of whether we make any money or not. If we have a good crop it will be consumed, and if it does not make money for the grower, it will be producing results and will be helping along the Empire. I think it would be very unwise on the part of any grower who can take care of his orchard to neglect it; because there will come a time when apples will be worth a great deal of money. One reason why the consumption of apples has not been so great as it should be is that the apples from Nova Scotia have been held too high, and from the reports we are getting at the present time, it does not look as if the whole crop is going to be marketed.

MR. HODGETTS: If we should have a big crop of apples this year, would it be possible to have a conference of the leading apple growers from the different provinces at some central point so that the distribution might be worked out more equitably. You will remember that last year the British Columbia growers thought there was going to be a big crop, and they sent down a delegation to try to induce the Government to put an embargo against American apples. I read a report of the British Columbia Convention held a few weeks ago, and they seem to have the same idea this year, that they are going to have a big crop, and they are going to try to get us to back them up in securing an embargo against American apples. If we could have a conference of all the Provinces, it is possible that we might come to some arrangement that would insure the apple growers against loss.

MR. JOHNSON, Dominion Fruit Commissioner: So far as I am personally concerned, I would be very glad to have a meeting of the large apple growers of the Dominion to discuss these questions of importance to the apple growers of Canada. I would first have to secure the consent of the Minister of Agriculture. If there is a big crop of apples I can assure you that the Government will not lose sight of the necessity of taking some action. It is a question whether it would be wise to place an embargo on American apples. I am not speaking officially. Our Nova Scotia friends may be looking to the United States market for next year. At their convention held a few weeks ago they passed a resolution asking the Dominion Government to fix a standard barrel for the whole of Canada. I think it is the same size barrel as is used in the United States. Nova Scotia fruit growers find it impossible to ship their apples to the United States owing to the fact that their barrel is so small that it will not be accepted. If they were to adopt the barrel that is used in New York State I believe there would be a very large sale for their apples in the United States. We did take into this country nearly five hundred thousand barrels of apples last year, against a duty

of 90 cents. I can assure you that we will be glad to have a conference and we will look into these matters seriously.

MR. GRIERSON: I quite agree with the Fruit Commissioner, I think if we can sell our apples against a duty of 90 cents we ought to be able to make good. If the United States were to put an embargo on coal coming into Canada it would be a very serious thing for our people. I do not think it would be a fair proposition to give the apple growers any better advantage than they have now over the American apple growers. If we cannot meet them with our product we had better get out of business. I do not anticipate any difficulty in marketing all the good fruit we will have. I think the suggestion Mr. Johnson made two years ago is a good one; that the Government and the towns and cities might get together and help market the fruit. If apples were sold at 50 cents on the tree even then with the high cost of wages, they would cost the city people quite a sum, but if we had some system of cheap transportation and delivery they might be got to the consumer at such a price that a large amount would be consumed. The apples might be shipped to large manufacturers who would sell them to their employees at cost.

THE APPLE SHIPPING ASSOCIATIONS AND THE 1918 CROP.

F. C. HART, DIRECTOR MARKETS BRANCH, TORONTO.

One speaker mentioned that the Association has not been as alive during the past three years as it previously was, and that is an indication of one of the most important points that I think we should consider in this matter of the marketing of our apples; that is the importance of continuing of our Marketing Associations in spite of adverse conditions. During the last three years there has been a decrease in interest in these associations. If we did happen to have a large production we would not be in as good shape to handle the crop as we were three years ago.

Another point is that the large proportion of the apple crop of the Province of Ontario is not produced by members of the Fruit Growers' Associations but by the average farmer. We depend largely on the members of the Fruit Growers' Associations for the quality of the fruit. We lost the western markets owing to the poor quality of the fruit. It is said that owing to the difficulty of securing labor the orchard will be neglected. I think a great effort should be made to keep our markets supplied with a good quality of fruit so that the market will not be lost. It has been said that you cannot count your chickens before they are hatched. But there are indications of a large crop this year and there is no doubt that the apple associations will be able to market that crop.

There undoubtedly will be a large quantity of low grade apples, and I think some consideration should be given to these low grade apples. It would not be good policy to move these low grade apples to the West as raw fruit, especially under the transportation difficulties that we are likely to have in the fall. It might be impossible to move a large crop of low grade apples to the West in the fall. There is a problem for this Association, in connection with the Food Control Office to take care of a large crop of poor grade apples. I do not know that I have any suggestions of importance as to the solving of that problem. There are in the Province of Ontario one hundred canning plants, fifty cider mills and about one hundred evaporating plants that possibly might be used more largely

than they are at the present time to take care of this No. 3 grade fruit. There is a large market for this type of fruit in the West. I have made inquiries, and I find that a large market could be worked up for apple butter in the West, and at exceptionally good prices. Any scheme to take care of the No. 3 apples is going to have a good effect on the price that you will obtain for the good fruit.

Q.—Don't you think that apples might be used to quite an extent in making jelly? Apple jelly could be shipped across the water to the boys in the trenches.

MR. HART: I think a good deal could be done in that connection. I have been bothered for sometime by men coming into my office and taking up my time discussing the blueberry question. There are carloads of blueberries in the North, and it is criminal to allow that fruit to go to waste. Blueberries by themselves don't make the best of jam, but if mixed with some other fruit they make an excellent jam.

PROF. CAESAR: We are not apt to have much trouble with the codling moth this year because they have been starved out. I can remember that after a few years of poor crop that we had an exceedingly good crop and it was a clean crop, simply because there were not the moths. That is one of the principal things that spoil our apples, and if we are not likely to have the scab very bad this year, the quality of our apples will be much better than you seem to suppose.

MR. HENRY: A year ago we made some apple butter. We have a nephew in France, and we sent him some of this apple butter in a glass sealer and he was highly delighted with it. I think that would be one way of getting rid of a lot of the poor apples.

MR. SHOURDS: We had a great scarcity of apples this year and I had to pay a big price for the culls. I paid more than I have to pay for No. 1's and No. 2's to-day. Now, if we get double the price we formerly got for our evaporated fruit there will still be no profit in it. Our profit has all been in the waste, we got for our waste this year what we formerly got for our evaporated apples. An evaporated apple is one of the most condensed forms of food, we simply take all the water out of it, and you put the water back and you have the apple where it started. The evaporators are not doing what they should for the simple reason that we are not able to export anything, and the people in this country are not educated to eat the product. I have not shipped a pound to the West or Vancouver. I still have my stock on hand, probably about \$40,000 worth of apples and by-products. If we should have a bumper crop next year, there are 150 evaporators in the Province, and if we were assured of a price we could handle all the No. 3's and the culls. There are more apples in Ontario and Nova Scotia to-day than there should be, and if we could get the fuel to dry them we could handle these apples now. The evaporator trade does not come into its own until the other apples are out of the way. I look to see evaporated apples worth 25 cents a pound. Owing to the high price that we had to pay for apples there was only about one evaporator out of fifteen that attempted to do anything. I do not know anything about this apple butter business, but when I was a boy my father used to make up a barrel of it and it would last until the next spring. It takes the place of butter. I can tell you it is great stuff. I will venture to say that not one in a hundred know the taste of apple butter. The Dutch apple butter is put up in barrels and it can be carried indefinitely. I think it would be a good thing to look up this apple butter business. We are going to have a fair crop of apples next year as far as I can judge.

ELMER LICK: When you are marketing your evaporated apples what competition do you have from "gallon apples?"

Mr. SHOURDS: The hotels prefer the gallon because all they have to do is to knock the top off the can and it is ready to go into the pie, but when you buy gallon apples you are practically buying water. That is about all you get.

THE LABOR SUPPLY IN 1918 FOR THE FRUIT AND VEGETABLE FARMS.

DR. W. A. RIDDELL, TORONTO, DIRECTOR ONTARIO GOVERNMENT LABOR BUREAU.

Nothing is more inspiring than the many examples that we see of the response of the call to country and to the cause of democracy. The response of our women to the call for war work has been very inspiring. Probably few fields are appealing to the women like the call to work on the land. Last week I had the privilege of appearing before a large audience interested in food production in the city of Boston. There they are beginning to organize their women just as we did last year. We are organizing, at the present time, women workers to go on the land, and I know that great sacrifices will be required of these women because I am a farmer boy and was brought up on a farm, and am operating a farm at the present time, and operating it with more or less success.

The food situation is one of the most serious confronting the Allies. Nothing will break down the morale of our Allies more than hunger. The military organization is only one factor in the war. The ultimate decision may well rest with the workers on the land. It has been said that success will come to the country that can put the last one hundred thousand men in the field, and it has also been said that there is no use putting the last one hundred thousand men in the field if their stomachs are empty. The President of the United States has recently said that to provide adequate supplies for the coming year is absolutely of vital importance. We cannot get too much into our minds the absolute necessity of more food production. Lloyd George has said "The plow is our hope," and he said to those going to work on the land "Do your work with your strength and experience," and I think those who go out to work on the land do so using all their strength. Many of the girls who went out last year did their duty almost beyond their strength. If the food situation is as serious as it is and if food production is as essential as it is no effort can be too great in order to secure an increased food production, and in no case should the sacrifice be all on one side.

Last year we succeeded in one way and another in putting between 15,000 and 18,000 people on the land in different parts of the Province. The labor problem is at the very heart of this matter of production. The labor problem is the key-stone in the arch of increased production. We might maintain our food production without getting additional labor, but I doubt if we can increase it. It will not be for the lack of farm equipment or for the lack of farm lands or agricultural equipment, nor even expert farm management, but it will be for the lack of farm labor. I could tell you if I had time why the problem of getting labor is becoming so difficult. It was difficult before the war due to many conditions that you fruit men and farmers could not control. It seems to me that it was a problem of better organization. The city organized before the country. I grew up with the grain growers' organizations in the West. I have hauled wheat to the little station where

the organization grew up in Manitoba, and I went through that period of depression, or oppression, if you like to call it that. I was talking to a leading farmer in the United States and he said: "There is only one thing we will have to do if we are going to get labor, and that is to hold up for a higher price for our product and pay higher wages." I do not think that that is going to meet the situation in Ontario, because I do not think it is possible to adjust our machinery quickly enough to meet the emergency in that way. It is a difficult question to get the city man to go to the country when he has to go at a loss; that is the first thing that we have to look at in studying this question. We have had undue competition for wages. I could take the records in our office and show you how wages have climbed step by step, even in the last year.

We have in Ontario between 150,000 and 175,000 farmers. We have already, by voluntary enlistment, sent 193,281 men from Ontario or approximately one man in every three between the ages of 18 and 45. That has created the problem of shortage of labor. Notwithstanding that, through better organization and better methods you have been able to increase the acreage in the Province of Ontario by 173,488 acres. I think that is an excellent showing. Now the women are prepared this year to step in and take the places of those men that have been withdrawn. We have under way a number of schemes to meet the farm labor situation. We are going to try to get a great number of men for our mixed farms, and I believe we are going to succeed. I am not in a position to-night to say how we are going to do that. It will require some sacrifice on the part of the men and on the part of the farmers. You cannot ask one group or another group to go all the way. If I go to Mr. So-and-So in the city who is working in a warehouse and drawing \$100 per month, and who has had some farm experience, and ask him to go and work on a farm for \$40 or \$60 per month, he is not likely to be willing to lose \$40 per month. On the other hand the farmer should not expect to make as much profit out of that man's work as he would out of an ordinary hired man. If we are going to meet this crisis as we should there has got to be sacrifice on both sides.

This idea that we should get men for farm work for \$1.10 per day is absolutely unsound. If the man is working in defence of his country it is another thing. To ask a man to go and work for a farmer for \$1.10 per day is economical nonsense. No government and no group of people would be justified in trying it out. It is wrong, and it could not be thought of. There is a great deal of difference in taking a man's service in defence of his country where no profit is made, and taking a man's service and placing him at the disposal of a private employer who would make private profit out of that man's sacrifice.

The labor that you are most interested in is the group of women that will be recruited this summer. We are planning to recruit between 5,000 and 6,000. I believe we can get that number. These women will work to the best of their ability and I believe their ability should not be under-estimated, neither should their work be underpaid. The farm labor side of our work does not represent more than one half of our work. If a woman can do two-thirds of the work that a man can do then she should be paid two-thirds of what the man gets. If she can do as much work as the man then she should be paid the same as a man. I am sorry to say that there are men who will put on women instead of men and put them on at an undue profit to themselves.

Last year our efforts were directed first of all to meeting the labor situation on the mixed farms. We put on a campaign to induce men to go out for the season and it was surprising the response we got. We put out about 2,500 men in that way at various times. We put out about 6,000 men at harvest time. We appealed

to manufacturers to give up as many of their men as possible and to pay the difference in wages, and that was responded to in many cases, and I think the men gave fairly good service.

A MEMBER: Do you think that is a better way than to have the Government pay the wages?

DR. RIDDELL: The question of the Government paying the difference seems to me to be the worst from the standpoint of the farmer. It would upset your whole labor situation. You would have to do it in every case. Not only the man from the city but the man working on the farm. Supposing Mr. Jones from the T. Eaton Company went out to work on your farm, and he had been getting \$125 per month with the T. Eaton Co., and you paid him \$50 per month. And if you had a man working on your farm who could do more work than the city man, he would want the same wages with the Government allowance as well. Otherwise he would say to you "You are taxing me to give that other man twice as much as I am getting, and I can do more work than he can on the farm." You would be doing that just because this farm man was patriotic enough to stay on the farm instead of going into the city to make higher wages. I do not know of any government that is doing that at the present time. The British Government has put a fixed guaranteed price for a certain period, and has fixed the minimum wages.

The boys' campaign which practically originated in this Province, and which has spread all over the Dominion and into the United States, met with great success last year. The Federal Government have thought so well of it that they are making it a Dominion-wide organization, and inside of a few weeks the campaign to recruit boys will be started from one end of the Dominion to the other, and it is hoped in that way to enlist thousands and thousands of boys between the ages of fifteen and nineteen. We got between 7,000 and 8,000 boys last year. We sent them out at the minimum rate of \$12. The average wage paid to boys was \$18, and the wages ranged from \$12 to \$40 per month. The farmers, on the whole, treated the boys very well. I think it was a splendid thing, the attitude of the farmers to the boys. It was a big undertaking to take boys from homes in the city, many of them where the boys had been sheltered. There were very few complaints. I think on the whole the response of both the farmers and the boys was splendid. We are trying to double the number this present year. We hope to get 15,000 boys. That is more than all the boys in our high schools, but we believe we can get them.

I suppose you are interested in labor for fruit farms. The question of rates is something that your committee have had to consider, and I trust it will be settled in a satisfactory way. I want to congratulate the fruit growers of Ontario on the splendid way they responded to the innovation. It was new to take a lot of city girls and put them out on fruit farms. The majority of the girls I spoke to were enthusiastic over the treatment they received. The saving of food was the direct plea that we put to the girls of this Province. It was not a question with many of the girls as to whether they could make as much as they could in other lines, but they wanted to help in food production and they were willing to make the sacrifice. Now we have to face the problem this year, and I think you are prepared to face it, and I believe both the girls and the fruit growers are prepared to give and take. We are going to put out an appeal: "Five thousand women workers wanted on the farms of Ontario for 1918." One woman said to me last night, "My daughter went out last year and I had to send her money to bring her home." That is one thing that would knock our campaign to pieces. Therefore, we must make the inducements so that they will be accepted by the girls.

It is not the business of the Government to fix or regulate wages. We try and
4 R.G.

bring the employer and the employee together. That is the only authority we have. I have men 'phone in and say: "I want a thousand men," and another may say, "I want 500 men." They tell me the rate they want to pay. And if it is not sufficient to induce the men to accept the employment I tell them I cannot get the men at that wage. They may say, "We want men and we cannot afford to pay more than 40c. per hour." Well that is all about it; we say we cannot get the men at that wage. We may advertise and get some, but when you come to launch a campaign where you are drawing on an almost entire new group of workers you have got to have some definite proposition.

Now in my judgment the inducements offered last year are not sufficient to enable us to do what we want to do. On November the 1st we had a meeting of 200 fruit pickers held at Toronto, representing 440 girls who were out last year from Toronto. The majority of these girls had only paid from \$2 to \$3 to get to their work, whilst others had paid as high as \$35. At this meeting a committee of the girls was appointed to meet a committee of the fruit growers at St. Catharines, which meeting was held on the 5th November, where they asked the fruit growers to provide housing accommodation for the girls. That was not agreed to at that time. Another meeting was held in Toronto on January 23rd, at which they came to almost a deadlock, and we have been waiting as a Government organization to find out what was going to come of these negotiations. I was glad to learn to-night that to some extent arrangements had been come to.

For the information of the meeting I might say that last year we sent out 1,250 women, of whom 850 were housed in camps that were run by the Young Women's Christian Association. One hundred were placed on farms and boarded at the farmers' homes. Three hundred were day workers, and went out from their homes in Hamilton and London. Last year we were very fortunate in getting the Federal Government to loan us tents, I hope they will be available this year, but I am not sure. The question of housing is closely wrapped up with the question of wages. When I speak of housing I mean providing a small cottage that will accommodate twenty-five women. Twenty-five seems to be an economic unit. The distance the girls have to go to their work has to be considered. The moving of the equipment and the providing of cots can best be done by the local growers. It is difficult to secure a waggon to transport the luggage from the station. Sometimes the girls were asked 50 per cent. more than it was worth, and this could be provided by the local men. The fruit growers could also put up the tents and dig a trench around them so that the water will not get in. This means that you will give your work instead of your check for this part of the work. This year it will cost more like \$5 per week to board the girls owing to the increased cost of food. I think a great deal can be done towards doing away with the heavy rents we had to pay last year by the fruit growers securing the cottages.

The Y.W.C.A. have offered to assist us this year to a greater extent than last year, although they lost \$3,000 last year. Even if the camps are run more cheaply this year than last year, the cost will be from 10 per cent. to 20 per cent. higher owing to the increased cost of foodstuffs.

Twenty-seven per cent. of the girls sent out last year were university students, 17 per cent. older girls, 14 per cent. high schools girls, 18 per cent. teachers, factory and munition workers 8 per cent., office workers 5 per cent., music students and teachers about 3 per cent., house workers about 2 per cent., others about 7 per cent. Thirty-one per cent. of the girls who went out were in their teens, 57 per cent. in their twenties, 5 per cent. nearly thirty, and 2 per cent. nearly forty, and about 1/2 per cent. over fifty. They did a great variety of work, picking, packing fruit,

and shipping, cutting out raspberry canes, cutting out grape vines and training them. They also planted potatoes, hoed, dug potatoes and drove the cultivator, and in some cases plowed. They raked the hay with horse rake and in some cases pitched hay, but I would not advise employing girls to pitch hay.

This is a summary of the wages paid per week: 3.5 per cent. received under \$4; 18 per cent., \$4; 30.25 per cent., \$5; 24 per cent., \$6; 12 per cent., \$7; 4.25 per cent., \$8; a little over 2 per cent., \$9; a little over 2 per cent., \$10; almost 2 per cent., \$11; 1.77 per cent., \$12 or over. That is to say 54 per cent. of the girls received between \$5 and \$7, which netted them from \$1 to \$3 per week; 48 per cent. received over \$6; 51.75 per cent. under \$6. These include only those of whom we have records, and who worked from three to four months. There are many short term girls whose wages are even lower. I have tried to present the situation to you, not in any way to try to thrust anything on you, but merely to show you that the Government is prepared to do its utmost to endeavor to secure labor for the farm. The Government is willing to spend money and have a big campaign in order to secure labor for you, but it seems to me that it is your part of the work to put forth your very best terms, so as to help us in going out to try and secure the girls. I think you will agree with me in saying that the Government must be careful not to try to capitalize the patriotism of the many in favor of the few, or to give any impression that it is doing that very thing. That is one thing that would injure our recruiting campaign. We need food and I think we are going to get the workers. I believe in the patriotism of both the worker and the farmer and fruit grower, and I think we are going to succeed without any doubt.

THE CHAIRMAN: It is utterly impossible for the farmer to figure out and pay the hired help the same as a contractor. I have been a fruit farmer, and Dr. Riddell knows that the farmer puts in long hours each day. I saw a fruit grower drawing peaches to the boat at two in the morning, and that same farmer has not made one dollar in the last two years. Under these conditions I want to know what encouragement there is for the fruit grower to continue in business at all, if it is not for the patriotic duty we owe the state. If it comes down to dollars and cents, I do not think there is much in it. As manager of the St. Catharines Cold Storage, and doing business for 530 people, I would not like to tell you how many of them cannot pay their debts. If a contractor takes a job and finds he cannot get men to do the work so that he can make it pay he goes back to the man and says I cannot do it for that money, you will have to pay me more. What can the fruit grower say? He has to pay wages before he knows whether he is going to get any fruit or not, and then when he does get it and picks it he has to sell it, and if he gets \$1 per basket he is all right. But if he cannot get the price he has to lose money.

MR. CARPENTER: If you walk through the fruit district you will find little plots of ten or fifteen acres that have been abandoned and the man has gone to the city because he has not been able to pay his way. He can get \$6 and \$8 and \$10 per day in the city, and he has had to leave the farm and go to the city because he could not hire help. I think the fruit farmer is about the poorest man there is in the country. We don't want these girls to come out and work on the fruit farms for nothing. We want to be fair with these young ladies. I think they will be able to do their duty much better this year than last.

MR. BAKER: I have eighteen acres at London. I have ten acres of fruit, and last year I was told that I could get high school girls from the city. I got a cottage fixed up for them and everything that they required. I gave them vegetables and everything, and they made a picnic of it. They came out and picked my fruit and ten of them stayed there six weeks, and part of them were with me eight weeks, and

it was a great success. I made money out of it and they were well satisfied. They cleared something like \$2 each a week after paying all expenses. That has been my experience, and perhaps it is a bright spot in view of what has been said.

MR. GIBSON: We have a Fruit Growers' Association at Newcastle, and we had the honor of selling our apples to the Government this year to ship to the soldiers. We got the ladies from Newcastle to come out and pack them in boxes—young ladies who had never packed a box of apples before. They started on cherries first and then plums, pears and then apples. We gave them \$1.75 and \$2 per day, and brought them in and took them home each day. They brought their dinners with them and worked from eight in the morning till five at night. They were well satisfied, and if Mr. Kydd is here I think he will say they did their work well.

MR. KYDD: You might think that was big wages, but these girls would average sixty boxes per day of apples, all wrapped. The work was well done, and I don't know where you would get together a better bunch of workers.

THE CHAIRMAN: Some take to the work better than others. It is impossible to pay them all the same wages, because one might be worth twice as much as another. Our work has to be done in a rush, and if we can get a girl who will work quickly she is worth a great deal more. I know that good work was done by the girls last year, and it can be done again. Last year we had a crop, but it took all the proceeds to make up for the losses of the year before.

MR. PATISON: Dr. Riddell put up the bluff at St. Catharines that the girls were going out to work on the grain farms this year. The farmers and their wives on these farms work from five in the morning till dark. How will you get these girls to work on these farms where the work is twice as hard as it is on the fruit farms? There is no doubt that the National Service did a great deal better than anybody expected they would do. In many cases they were an expensive luxury to the fruit growers last year. I do not think any of the girls are worth 25c. an hour. You must take into account the labor the farmer has already on his farm that is worth twice as much as the work of the National Service girls, and he only pays this labor 15c. per hour. The fruit grower simply cannot pay 25c. per hour and make any money.

MR. JEMMETT: I think perhaps Mr. Patison is a little hard on the National Service girls. I had quite a lot of them last year picking berries, and I never had a better lot of girls or labor of any kind around me in my life. Of course these girls cannot be expected to run a fruit farm. I had twenty-five or thirty girls and I got them for berry picking, but I used them for planting. The first girls I got were too young, they were about sixteen years of age. They would work well, and a couple of them would do more work than a hired man. But you could not rely on them, they would feel like working one minute, and the next minute you would see them hiking off with the farmer's son away down the sideline. The next bunch I got were from Hamilton, and a more faithful lot of girls I never saw. They worked honestly and did very good work, but of course they could not pick as many berries as the local women who had been used to it. I hope to get a number of these girls next year. We have a lot of raspberries and you know how difficult they are to pick. I would not mind paying these girls more than they are worth for the sake of saving these berries from going to waste. Of course if the farmer was like the railways or the munition manufacturers all he would have to do would be to go to the Government and get his bonds endorsed.

MR. TERRY, Clarkson: The fruit growers of Clarkson had a little experience with the National Service girls, although personally I did not use them myself, because before that proposition was brought before the fruit growers of Clarkson

district I had already made arrangements for my pickers. We have had a number of girls from Hamilton for the past five years, and in addition to that we have had them from as far east as Lindsay and Millbrook, and I must say that we never had as much satisfaction as we had last year. We take our berry pickers right into our home, and give them our home, and if there is any one to go out doors in tents we are the ones that go out. We pay the pickers a cent a box for strawberries, give them their board, and take good care of them. When the berries begin to get a little scarce we pay them a cent and a half, and when they get a little more scarce we pay them two cents. I never wait till they ask for a raise of pay, and last year at the end of the crop I gave them three cents per box and their board. For raspberry picking we pay two cents per box and their board.

We never have any difficulty in getting pickers, and never have any difficulty in keeping them. They stayed with us last year for the eight weeks, and they averaged \$6 per week clear of all expenses. We gave them their board and their rooms and gave them the use of the washing machine and electric iron for ironing, and everything that they required to make them comfortable. If it rained they got their board, and if we only had a half day's picking, we got out the car and ran them down to the lake for the afternoon. They did no hoeing or work of any kind except fruit picking. During the strawberry season I do not think we had one full day's picking. We had a lot of pickers, and we did not have enough berries to keep them all going, but we always found the girls ready for their work and they were well satisfied. I don't think there is anyone in the country can get my pickers away from me for this coming season. I feel satisfied that they will all be back.

We had one girl, a school teacher from Millbrook, who had never been on a farm before, and I have seen her picking berries all afternoon with the tears running down her face, too much grit to give up. When I advised her to go in and take a rest she said: "I came out here to help, and I am going to stick to the job." I was told a short time ago that her fellow pickers had to carry her upstairs to bed more nights than one, but she stayed till the end of the season. One young lady said to me, "I have had a good time, but I do not expect to be back next year. I am going to marry a farmer soon, but I will see to it that there are no strawberries grown on our farm." (Laughter.) I think the girls deserve all kinds of credit. There was a great bunch of them out at Clarkson, and they gave very good satisfaction.

I am sorry to hear so many of my brother fruit growers say that there is nothing in fruit growing. We at Clarkson have a better story than that to tell. I do not know that we are any better farmers than you are across the Lake, or that we have any better land, but I do know that we can grow fruit and make money at the prices we have to pay for picking. We are not getting wealthy, but we are satisfied. I do not know what other people paid for picking. I like to look after my own business. But I feel satisfied that I will have all the pickers I want this year.

MR. FISHER: I desire to help Mr. Terry clear up the impression that will no doubt go out from this meeting that we are a bunch of hard-up citizens. I do not think any person can look in the faces of the members present and say that they look as if they had suffered privations of any kind. Although probably we are not making a great deal, I think we are all getting the share that is coming to us, and like Mr. Terry I believe that labor well used and well paid will give a satisfactory return.

DR. RIDDELL: I am sure I appreciate entering into this testimonial meeting. One or two things have been said that I do not think are fair. One or two remarks

have been addressed to myself and the Branch that I represent, as if we had dictated the prices that were to be paid. Now I want to state clearly and plainly that that is absolutely false. I had to get a report from some one who had attended both meetings in order to know what the terms were. I want to make it perfectly clear that these terms are not my terms, we have nothing to do with making terms, all we do is to try and bring the parties together.

MR. BROWN: Will the high school pupils who were allowed to go out last year be allowed to do the same this year?

DR. RIDDELL: Practically the same regulation is in force this year that was in force last year. This year, the boy who was out last year and is going up for his final examination will not be permitted to go out.

THE CHAIRMAN: We are indebted to Dr. Riddell for the information he has given us.

STRAWBERRY GROWING IN PRINCE EDWARD COUNTY.

HOWARD LEAVENS, BLOOMFIELD.

Strawberry growing in Prince Edward County has grown to large proportions in the last five years, owing to a large extent to the demand by the canning factories for the fruit at good prices. There are from fifteen to twenty factories in the county, and although there are not enough berries grown to supply all the factories, enough factories run on them to take all that are grown. In fact the Dominion Cannery, not being able to get enough berries from outside growers, have been growing a large acreage on their own farm.

The prices paid by the factories have been good, averaging about 9 cts. the last three years. Last year 10 cts. per qt. box was paid for the whole crop. Some growers ship their berries, but the high prices paid at home has not warranted very heavy shipping, as at least 4 cts. per box more must be realized in order to pay the extra expense of boxes, crates and express. Also in shipping berries a great deal more care has to be taken in filling the boxes and sorting the fruit, as the factories will accept fruit that will not ship, when they are getting the whole crop. Also at the end of the season as well as after a rain there is a certain amount of fruit not good enough to ship, and taking this all in consideration at least a margin of 4 cts. is needed to break even with the factory price.

There is considerable land well adapted to growing berries around Picton and Bloomfield, as well as in the western part of the county. This land is mostly loam and some black ground. Usually a heavy coat of manure is applied to the land the previous season to setting the plants and a hoe crop is grown to clear the land of weeds. Very little fertilizer has been used in the county, most growers depending on manure. Potatoes have been a favorite crop to precede as well as follow the strawberry crop.

The main varieties grown have been the Wilson, Senator Dunlap and Parsons' Beauty. Possibly 75 per cent. of the berries grown are the Dunlap. The Wilson is not as heavy a yielder as the other varieties and is a softer berry. The main objection to the Dunlap is the white tip, which effects the appearance of the fruit in the can. The Parsons' Beauty is a deeper red all through, and shows up better after being canned, although the Wilson has the best quality of the three varieties.

Season before last a blight affected a large number of patches and after two or three pickings the plants wilted and died. This blight affected practically all

varieties except a few plantings of Wilson berries and they seemed immune, a full crop being harvested from them. Whether this was due to the variety or the land or conditions under which they were handled I cannot say.

Some growers in setting the plants, especially where a number of acres are set, are using the tomato planter for this work. This machine with three men will set and water from 12,000 to 18,000 plants a day, and those that have used it claim that it is equal to hand setting as well as the saving of a great deal of time. We have found it pays to set plants as early as possible in the season so as to give them a good root before too much dry weather sets in. We have not tried setting in the fall, but believe that early spring setting suits our conditions best. Where the land is fairly clean of weeds two crops are taken off before the patch is ploughed up although the second crop is not expected to be as heavy as the first.

Some plow two furrows through the centre of each old row and cultivate this down after the first crop is harvested, and if the season is favorable the new plants will run during the fall, which makes a patch for another year, practically as good as a new set patch. The weather conditions have a good deal to do with this practice, and also the conditions of the land. Sandy loam can be plowed at any time, but some of the other soils, especially if there is a clay mixture, have to be plowed after a rain and this does not always come at the right time. We find it necessary to cover the plants in the fall with a coating of straw for two reasons. One is in the spring if the plants are not covered they are apt to heave out of the soil during the freezing and thawing weather, and also if there is not straw around the plants at picking time the fruit will be very gritty and dirty, especially after a shower which spatters the soil on the berries and makes them unfit for use.

The yield of berries varies a good deal according to the care and attention given the plants and the season; one grower putting in as high as 10,500 quarts into the factory from one acre and another 18,000 quarts from two acres. These parties make a specialty of berry growing where some other growers having straw-berries more as a side line have not had as large yields per acre, but possibly have not put on the same expense per acre. There is a good outlet for berries in shipping them by boat from Picton to Kingston, Gananoque, Brockville and some of the smaller places along the boat route, as well as direct daily trains to Ottawa and Toronto, although Toronto is not so good a market for us as the Niagara fruit generally fills that market.

So far there has been sufficient help for picking the crop. This help comes from the villages and town, and also a good many families are moving in about that time preparing for the factory season, although each season it is getting scarcer and the cost of the handling of the crop is greater.

MR. PATISON: Do you use straw to cover your strawberries?

MR. LEAVENS: Yes, nothing else. If the straw is not threshed real clean, you will sometimes get a crop of grain as well as berries the next season. The yield of berries varies very much. I know some growers that have received as high as 10,500 quarts from an acre.

Q.—What is the average crop of strawberries per acre?

A.—I could not give you a general average, but my average would be nearly 4,000 quarts per acre. We have been in the habit of selling plants, and we merely pick the patch that is left.

THE CHAIRMAN: We have heard this address, and I think we can devote a little time to discussion. The strawberry is one of our best and possibly the most profitable fruit that we handle. I think with the exception of the drawback in

getting pickers, there is more money made out of strawberries than any other crop we handle.

MR. FISHER: What does it cost to produce a quart of strawberries?

MR. LEAVENS: I could not give you any statistics. I think you would have to ask the Department of Agriculture a question like that.

MR. PATISON: Don't you think your average of 4,000 quarts a little too low?

MR. LEAVENS: No, I do not. Last year I could not say what it was; but we had a very poor season.

Q.—You mean that average for one season, not for a number of years?

A.—I mean that average for a number of years. We did not have 4,000 quarts last year.

Q.—What did you pay for picking?

A.—We paid 1c., but last year we paid 2c. after the first two or three pickings. We started in at a cent but we found that was not enough.

Q.—What could a picker earn in a day?

A.—Some good pickers would pick 150 quarts, but more would pick from 75 to 100.

Q.—How wide are the rows?

A.—Four feet apart, and we put the plants about 20 inches in the row. We set our plants with a tomato setter, and 20 inches is about as close as we can set them. The machine goes pretty fast, and it is hard to get a team to walk slow enough to plant them.

Q.—How wide do you allow them to run?

A.—Just so that you can get through with the cultivator, about 18 inches to 2 feet between.

Q.—What kind of berry do you grow?

A.—I have been growing the Wilson. They are similar to the Dunlap.

MR. FOSTER: I would like to know if there was anybody in the room who could tell what it costs to grow a box of strawberries? If we knew the cost of producing our stuff, then we would know what we could afford to pay for harvesting it.

A MEMBER: Can you produce a quart for 7c.?

MR. FOSTER: No; you cannot at the present time. A few years ago I figured it out and I made it 6c., but the cost has advanced more than one cent since then. I think the average crop Mr. Leavens has given us is a little low. I do not claim to be an expert, but I can do a little better than that at home. We have had exceptional crops where we have got 11,000 boxes to the acre. We never had a berry that gave us as good returns as the Williams, but Mr. Kydd will take exception to that.

MR. KYDD: You never grew anything that the people hated to eat worse than the Williams.

MR. FOSTER: We know it is not the best berry for the people, but for shipping and canning it is the best berry. If we are going to produce berries at a profit we must produce quality and clean berries, and in order to do that we have to take care of our plantations. Anybody who has grown strawberries knows that that costs money, and it takes three years to get two crops.

A MEMBER: Why not find out the cost of growing an acre of strawberries?

MR. HORNE, Clarkson: I think the conditions of the soil have something to do with it, but I think it costs me 7c. a quart to grow strawberries. We know that other people can grow a bigger crop than we can, and therefore it would be difficult to come to a definite conclusion on the subject.

THE CHAIRMAN: Some soils will produce more berries than others. The question we are trying to get at is a very important one, but the difficulty is that we very seldom get two seasons alike, and we will have to take the average for a number of years. Sometimes a grower will start to figure out and keep track for one or two years, and then discontinue, and the result is that they only have the cost for those two years, and do not know the average cost.

MR. ONSLOW: If you have the most suitable land for growing strawberries, you will reduce the cost. I think it is up to the Department of Agriculture to institute a system somewhat the same as they have in New York State of getting the cost of the production of all crops. In that state they have officials to go around and tabulate the cost of production on different kinds of soil. If they did that in Ontario we would have the best idea of what kind of soil to grow crops on, and how much it would cost us to grow them.

MR. PATISON: I think it would be well to have a small demonstration plot in each strawberry section, and then they would be able to give exact figures for that section.

THE CHAIRMAN: The trouble is that when the Government undertakes to carry out an experiment on a small plot, they get remarkable results, and those results are not borne out by the actual work.

MR. ONSLOW: New York State take the farmers' crops for the season and average them up. They do not have any experimental crops, but the actual crops grown by the farmers.

MR. GRIERSON: What is the most suitable land for growing strawberries—light, heavy or loam?

THE CHAIRMAN: My own preference is a rather light soil.

MR. KYDD: Go to Clarkson and see the kind of land they have there, and then you will know the kind of land to grow strawberries on.

THE CHAIRMAN: Some strains of Williams are not as good as others. There is such a thing as growing good Williams strawberries and bad ones. You can grow turnips that are not fit to eat, and strawberries are the same.

MR. KYDD: What kind of berry does Mr. Terry grow?

MR. TERRY: The Glen Mary.

THE CHAIRMAN: It is a better berry than the Williams, but won't carry so well, and it will not produce in some sections.

MR. TERRY: If it is a question of growing a box of strawberries, I would like to say I am not much interested in figuring out what it costs to grow a box of berries. What I do is to put in a patch of berries and work among them, keep stirring up the soil, and at the end of the year, after all expenses are paid, if I have \$2,000 or \$3,000 to my credit, I know that I have made money. We find at Clarkson that on our soil, with the quicksand subsoil—which is a moist soil—that it does not make any difference or only very little difference what kind of a season we have, unless it is an extremely wet season. We will get a good crop if it is extremely dry on our soil. Mr. Horne is about a mile from us, and they have a different kind of soil. They can grow tomatoes or corn, but when it comes to growing strawberries, they are not in it.

MR. PATISON: Is not it also a fact that you are exceptionally well situated in the matter of getting a heavy amount of manure?

MR. TERRY: We are convenient to the station, otherwise anyone else can get it just as well as we can. We feed the land highly. It would be a difficult matter to feed too highly. You may have just as good a cow as ever lived in a stable, but

if you do not feed her, you will not get results, and it is the same in growing strawberries. If you do not feed the land you won't get the strawberries.

MR. PATISON: With that particular kind of soil, if you were in a part of the country where you could not get manure in large quantities you would not get results?

MR. TERRY: No, I do not think there would be any money in trying to grow strawberries on that kind of soil unless you could get manure.

MR. BAKER: I live near London, and I have clay loam soil. I am unable to get manure, because two of my boys are at the front, and last year I had to use fertilizer. I had no manure on my strawberry patch last year, but I secured quite a bit of money out of it. I have always found that until I get 10c. a box or over, there is not much money in growing strawberries. I have grown strawberries for a number of years. Last year we got a good big price. If we get less than 10c. we lose money.

I would like someone to tell me what fertilizer is the best to use on a clay loam soil when you cannot get manure. I got a lot of fruit last year, and I grow the Glen Mary strawberry, which is an ideal berry for a clay loam soil.

THE CHAIRMAN: I can remember when the standard price for strawberries at the factory was three cents a box.

MR. KYDD: The beginner in growing strawberries ought to be careful to get a variety with long roots. There is a great difference in the length of roots of strawberries. Take, for example, the Warfield, which has very short roots. It will not do in a dry season, but will give a good crop in a wet season.

MR. BAKER: I can grow a good crop of the Glen Mary on the soil we have, but we must have moisture for strawberries.

MR. PATISON: Did you ever try mulching?

MR. BAKER: Yes, but it does not make any difference in dry weather.

MR. HODGETTS: What is going to be a fair price to pay for picking strawberries this season?

MR. HARRISON: You cannot set a general price. One grower may have a good crop and the girls may be able to go in and pick at 2c. and make more money than they would if they were picking in another patch at 3c. or 4c. Some of the pickers would not be able to earn ordinary soldier's pay at 2c. a box in some of the patches that I saw last year. We have tried at Waterford to set a standard price, but we find it cannot be done.

MR. HODGETTS: There ought to be a certain range of prices.

MR. HORNE: On my land it would be harder work for a picker to pick 150 boxes than it would be to pick 350 on Mr. Orr's land. Therefore, it would be pretty hard to set a price.

MR. PATISON: Is not there a record in Clarkson of two Indians who earned \$5 a day each?

MR. ORR, Clarkson: Five hundred and sixty-five quarts were picked by one Indian in a day on Mr. Lightfoot's patch. Up until last year we paid one cent a quart, but last year on account of the scarcity of labor we raised it to 1½c, and I paid 1½c. right through. I had as many as 60 pickers. Some of the pickers last year earned \$3.50 a day, and I had an Indian who picked as high as 350 quarts—the highest was 400 quarts. So that if we raised it higher than a cent and a half. I do not know where we would get off at, unless we got a very high price for our berries. In this case I had the tents and we furnished them with milk, and brought their produce back and forth for them, and they were very well satisfied. They

were making very good wages, and if you raise it much higher than a cent and a half, we will have to be sure of 15c. a quart for the berries.

THE CHAIRMAN: I think the average would be more than 4,000 quarts to the acre. They grow more than 4,000 quarts to the acre in Clarkson.

MR. PATISON: Mr. Johnson, who has been a strawberry grower for some years, claims that his average was from 8,000 to 12,000 quarts per acre. He was growing them for the canning factory.

MR. BUNTING: The Niagara Peninsula Association has been negotiating with the Labour Bureau, and the price for picking fruit is going up. The price for strawberries has been practically fixed as far as the Niagara Fruit Growers is concerned at 2c. per box. That has been agreed upon by the committee, and also by the committee representing the girls, so that if there is any objection on the part of the fruit growers at Burlington or this side of the lake it ought to be taken up. That is the minimum price, and where the picking is poor, the latter part of the season, the girls are to have the option of being paid 15c. an hour. That has been practically agreed upon between the Association and the girls.

A MEMBER: How much would the average girl make—an hour?

MR. BUNTING: That is more than I can tell you. It depends on the locality and the crop.

Q.—What is the average for a picker in a day in that district?

A.—I could not tell you off-hand what the average is. We have heard of one man picking 540 boxes in a day, but our people are not able to do that.

MR. FISHER: We have had three or four pickers who picked 400 boxes each on the same day.

THE CHAIRMAN: If the price set by the Niagara Peninsula Growers is going to conflict with the price paid by the people on this side of the lake, it had better be looked into before the matter is finally settled. If a picker can pick 300 boxes in a day you must have an exceptionally good patch.

MR. GAYMAN: I know Indians who have picked 400 boxes a day for a whole week in the Jordan District, but last year we had so much rain that our average was not very high. There are good patches and poor patches.

MR. BUNTING: These are the prices that have been practically agreed upon with one or two exceptions:

Strawberries, 2c. a box.

Raspberries, 3c. a box.

Blackberries, 2c. a box.

Cherries, 20c. per 11-quart basket, 15 pounds net.

Red currants, 20c. per 11-quart basket.

Black currants, 40c. per basket, 18 pounds net.

There is a little difference in connection with the black currants between the two committees. The young ladies thought they should have 25c. per basket for cherries where a ladder is used, and that they should have 45c. per basket for black currants. That difference has not been adjusted. The fruit growers have offered to guarantee \$1 per day rain or shine to these girls with 15c. per hour on days upon which they would work, which would allow them to make \$1.50 per day, if they worked 10 hours.

The statement was made that owing to wet weather, the girls were idle a good deal of the time, and in many cases they were not able to make their board, and the growers will be asked to guarantee them at least \$1 per day, whether they work

or not. It is up to the growers to see that they are kept busy, and if they work by the hour, they are to have 15c. an hour, and during the latter part of the season they are to have 20c. per hour.

THE CHAIRMAN: I would like to hear from the Clarkson people as to whether they think those prices will conflict with their prices.

MR. ORR: I think the pickers we had last year received 11½c. right straight through, and I would not be prepared to pay more, because it costs a good deal of money to keep a strawberry patch in good shape. Our patches have to be hoed three times before we pick, and any picker who goes to work at 1½c. will average at least \$2 a day without any trouble. We had some pickers who came out last year who practically would not pick any fruit at all, and if we had to pay girls like that \$1 a day whether they worked or not, we would not be making much money. I think the proper way is to fix the rate at a cent and a half per box.

THE EFFECT OF THE WAR ON THE FARM APPLE ORCHARDS.

DR. A. J. GRANT, MANAGER, THEDFORD FRUIT GROWERS.

In attempting to handle the subject which has been assigned to me, I am going to endeavor to bring out some bald truths concerning the average farm apple orchard which will sound badly and look still worse, if they ever get into print; but I believe that the time has arrived when the interests of the apple growing industry of this Province require that we look some stern facts in the face and endeavor to apply the remedy. Who will dispute the fact that the average farm apple orchard is slipping back? We may blame the scarcity of labor since the great war broke out, but if you will permit a digression from the text, I would like to go back to pre-war days for a few minutes.

The apple industry of Ontario originated in the orchards planted by the earliest settlers, chiefly with the view of supplying their own wants, but their ideas were generous and in many cases quite a respectable orchard was planted so that the home table might be well supplied with apples. I have in mind one orchard in Western Ontario which was planted some forty odd years ago, and it contains a few trees of nearly every variety that ever grew, and then some. The original planting was 500 trees, and the good farmer told me that his idea was to have plenty of apples for himself and perhaps a few for his neighbors. This is perhaps an extreme example of the generous spirit which pervaded many an early settler when he undertook to plant a few fruit trees for his own use. In this way many quite pretentious orchards were literally wished upon the individual who happened to own the farm fifteen or twenty years hence. The overplus of apples found a ready sale and some of the more enterprising farmers shipped a few barrels to Great Britain. The results were surprisingly good and a boom in orchard planting was the result. Practically every farm in the more settled parts of Ontario became possessed of an apple orchard, the size depending upon the enthusiasm of the owner. The export market grew to very large proportions and the itinerant apple buyer was much in evidence in all parts of the country, where good fruit was being grown successfully. These were the days when good apples were easy to produce and many orchards returned good crops pretty regularly with very little attention. Then the pests came in sufficient number to cause the grower who wanted real apples to put up a fight for it. No more easy money for him, and the pests have been asserting themselves more strongly ever since.

In our section of the country, during the season of 1912 there were quite a number of unsprayed orchards which yielded a large crop of fairly clean fruit, and I believe that this state of affairs was fairly general throughout Ontario; but since this time we have had such an avalanche of scab that only very persistent care and spraying has produced a good crop of fruit. The season of 1913 was a lean one, and scab was very prevalent; 1914 showed an abundant crop with plenty of scab and plenty of worry for the grower, owing to the outbreak of the war on the very eve of harvest. Naturally there was panic and disorganization in the apple trade, and the travelling apple buyer, who has often been made the subject of much abuse at our hands, never had a better opportunity of justifying his existence than he did during this trying season. Money was tight and the buyer failed to show his genial countenance in his accustomed haunts, with the result that thousands of barrels of apples were never picked. Associations and large growers were in a position to take care of their fruit as usual, and they were pretty generally well rewarded for their labor. In the years of 1915 and 1916, short crops and more scab was the order of the day, until the season of 1917 saw the climax of six solid years of trial and tribulation for the Ontario farmer when he got no apple crop at all. I am fully satisfied that the severe infection of scab on the leaves during 1916 largely accounted for the dearth of apples in the following season. The trees were so robbed of their vigor through lack of healthy leaf surface, that they could not mature the buds.

From the history of the past six seasons, is it any wonder that we see retrogression going on among our apple orchards? It required a heap of courage and no little faith on the part of any farmer, to stay with the game and take care of his trees, with the result that a great many orchards have been eliminated in the race. The elimination of many of these orchards has been a blessing in disguise, as they are surely travelling toward an untimely death, and with their demise will disappear at least some of the low grade fruit that gets on the market in favorable seasons. But we may well feel concerned lest the process of elimination proceed too far, and the apple industry of this Province receive a rude jolt which will not easily be recovered from. Let us remember that you cannot grow an apple orchard in a night; it requires twelve or fifteen years to get our standard varieties producing commercially. What of the tremendous increase in the importation of apples during the past few seasons? Does anyone imagine that this state of affairs is going to make it any easier for the Ontario apple grower? We are losing our best markets to foreign trade, because we are failing to produce sufficient high class fruit to supply the demand. We have too long soothed ourselves with such pap as "the superior flavor of Ontario apples." We can produce an apple of superior flavor to that produced any other place in the world, but the realization of this great blessing is utterly useless unless we get busy and grow them in sufficient number to supply the trade. The people in our own great cities and towns want an abundance of first-class apples and they have got the money to pay for them. If we Ontario growers will not produce them, they will buy from the Western United States and British Columbia. We may be able to excel these districts in flavor, but they have got us beaten to death when it comes down to getting the business.

We have a number of large growers whose orchards require no paternal care on our part. These men are successful in a line of their own choice, and they are keeping their orchards in first class condition and being well rewarded financially; but the fact remains that by far the largest portion of our commercial apple crop

is produced in the farm orchard, owned and operated by a farmer with many and varied interests in agriculture. It is the well situated orchards in this class that are crying out for attention, and I am fully satisfied that the industry is in for a severe set-back if some concerted effort is not made to reclaim these orchards.

When we consider the millions of dollars invested in apple orchards throughout this Province it seems to me worse than sinful waste to allow them to deteriorate and fall by the wayside, simply from lack of care. The idea seems to be prevalent in some quarters that the orchard may be allowed to stand in a state of neglect until labor conditions become normal, and then whipped back into shape at the will of the owner. The whipping back process is no easy matter, and it takes both money and energy in abundance. The man who is neglecting his orchard right now because the task looks too great will have little chance of stirring up sufficient energy to tackle it a few years hence because the work is multiplying by leaps and bounds. I have done considerable work in rejuvenating neglected orchards, and let me tell you that it is only a mighty good one that will pay for the work of putting it back into shape. Then there is the other side of the story. Orchard pests never were easy to fight, even when we kept hammering away at them, but imagine what is going to happen during this period of laxity on our part. Scab has become so prevalent during the past few years that we frequently hear farmers wonder if we are ever going to be able to grow clean apples any more. San José scale is finding new haunts almost daily, and is perhaps most to be dreaded, because it soon kills the trees attacked. If this disease showed any special preference for poor orchards, or even poor varieties, we might feel easier; but like affliction falling upon the just and the unjust, so this pest attacks both the good and the bad orchards, and the owner does not require to be in a very deep state of slumber to have the disease get the start of him.

As an employer of labor, I fully realize the many difficulties which have beset our path since the war commenced, and these difficulties will become greater for some time to come. We are engaged in the mightiest struggle that the world has ever known, and, with our backs to the wall, we have resolved that this is to be a fight to a finish. We must stay with Germany until that arrogant spirit of military autocracy is crushed, hopelessly beyond repair: because common decency and everything in this life worth living for are the issues at stake. To accomplish this task is going to require prodigious supplies of men, money and food, and to provide these means national team-play. There is work for everybody and nobody is doing his duty until he is running full capacity. Our duty is plainly a matter of production to the limit with the means at hand, because more and more of our able-bodied men will be required of us to fill the gaps at the front. Medical science tells us that good bodily vigor is not possible without a fruit ration, and the apple is the king of all fruits. Are we doing our duty to the cause when we allow our orchards to get into such a condition that a decent crop of apples is well nigh impossible? This is not far-fetched argument: it is based upon common evidence to be had in any section of Ontario. The spectacle of a good crop of clean apples on a few orchards while the general average have practically nothing at all has been only too common during the past three seasons, and the cause is not hard to find; in almost every instance it was due to lack of care on the part of the owner.

We farmers have often been accused of a great many shortcomings, but I do not believe that we can be rightly accused of gross carelessness in connection with any paying branch of the farm. If some of us have been neglecting our orchards there must be some reason for it, and it is quite apparent that there are some rea-

sons that might be threshed out to advantage. I think we will all take common ground that the production of good apples in Ontario, from this out, spells work and care in capital letters; but there is a silver lining to the cloud in the fact that the demand for really good apples was never better; and I will back a good apple orchard against any other branch on the farm, when the returns are figured up at the end of the season. It is not many years since there was a discussion at one of our conventions on the possibility of over-production. However, I do not think we need waste time over this subject now, as we are seriously concerned about under-production and will be for many years to come. If you can grow good apples and have facilities for marketing them, you can make a lot of money; but nobody ever made any money growing poor apples, or growing a low grade of anything else for that matter. It requires considerable knowledge and intelligence to carry out a good crop rotation on any farm, and get returns for your labor, and along the same line of reasoning, it requires as much, if not more, knowledge and intelligence to produce an apple crop with any degree of certainty. This can readily be acquired by the man who is interested, and the sources of information are as free as water. Theory without practice would be hopeless, but unless you have studied some well grounded theory you must fail from a practical standpoint: life is too short to grope in the dark and expect to make a success of anything. I often think that we would appreciate the services of our Agricultural College and Fruit Branch staffs to a fuller extent if we had to pay directly for them. Did you ever size up the crowd at a pruning or spraying demonstration? You will invariably find the fellow absent who is growing the poor crop of apples, and the men in the front row, thirsting for information, are usually the successful growers. They gathered much of their knowledge of the game in this way, and they are always trying to learn something more. A general knowledge of the art of spraying and orchard care would undoubtedly mean less neglect and more good apples.

Many of our farm orchards are too small for profitable handling, and it would seem to me that those representing anything less than 150 to 200 trees should be leased or operated on shares by some man qualified for the work. Several such orchards in the same locality, under one management, would afford power spray machinery and other equipment to run the business successfully. This scheme has worked out well in many parts of Ontario, and a more reasonable attitude on the part of the owners, in the matter of rent, should make a wide application of this method very popular. Good money can be made by renting a few small orchards at fifty to seventy-five cents per annum per tree, for a term of five or six years. The farmer with a neglected orchard on his hands will realize a great deal more money in this way, and his property will be getting better instead of worse. Many of our co-operative associations are made up of these small orchards which might be readily placed in the hands of fewer growers to the profit of all concerned and to the lasting benefit of the apple industry at large. The number of fruit growers' associations in Ontario is decreasing every year, and the small orchard is the big difficulty. I would like to see the Co-operation and Markets Branch of our Provincial Department of Agriculture undertake to reorganize some of our Associations along these lines, and success would surely attend their efforts. There are at least a few men in every section where an Association once existed—moving spirits we may call them—who realize that there is good money to be made in growing apples. Why not form associations containing six or seven live members representing sufficient trees to make the business a success? A large membership does not necessarily mean a successful organization; in fact, the reverse is usually the

case. The business is practically a partnership deal, and the co-operative spirit is a brand of religion which does not grow on every bush. It should not be difficult for them to lease their neighbors' orchards, each in sufficient number to make apples their main stake. Labor problems would then be easier, as there would be work for a small gang of men instead of employing one or two men at certain seasons of the year. Our Association has made a practice of sending out a pruning gang every year, and we have always been able to get men to work in a gang when our individual members might have difficulty in employing one man to help prune. Evidently the social element has something to do with this preference on the part of men. Our method has been to pay the wages every week from Association funds, and charge the amount against the growers' account to be deducted from subsequent fruit sales. Members will have work done under these conditions when they might hesitate to face a respectable pay roll on Saturday night at a time of the year when apples are far from their thoughts.

Every phase of life and industry has been affected by war activities, and it has been necessary to make adjustments in every line of work in order to compensate for the shortage of labor and to meet the new conditions imposed upon us. Apple orcharding is no exception to the rule, and we should endeavor, at all hazards, to keep up the essential work and eliminate those things which are not absolutely vital to our success.

Fertility must be kept up and manure can be readily applied during the winter months, direct from the stables, if you are fortunate to have sufficient on the place, or it may be teamed from a distance much more economically on sleighs than on wheels. Most of our orchards require more liberal applications of manure than they have been getting, and I believe that the crying weakness of most farm apple orchards is lack of fertility. Heavy crops of apples, whether clean or scabby, take a lot out of the soil, and the trees are bound to show poverty in foliage with consequent lack of fruit if manure is not applied regularly, in sufficient quantity. If we were obliged to grow one crop year after year on the same piece of land we would never be able to satisfy ourselves with the quantity of manure applied, no matter how great our source of supply happened to be, and we all know that anything short of a Herculean effort to keep up fertility would mean a steadily diminishing crop. The poor old apple orchard is struggling to produce the same crop year in and year out, and the average attempts at putting back the fertility are far short of an effort that would do credit to Hercules. It pays well to ship in manure from the larger centres and draw it to the orchards in the winter time. Chemical fertilizers are useful, but in my opinion they cannot take the place of barnyard manure; I like to use both, but the price of the chemicals is an important consideration at the present time. The only economy that should be used in manuring is to place the material only over the feeding roots of the trees, keeping about five feet away from the trunk in all directions.

Pruning is necessary and can readily be made a winter job. During war time, anyway, you will not be nearly so cold as our gallant boys in the trenches at this present moment, and there will be no German bullets to dodge. All my apple orchard pruning has been done in the winter for some years merely as a matter of economy, and I have never yet seen any indication of damage to the trees. In any event I would rather take a chance on a little damage just now than chance getting the work done when the spring rush arrives. If the day is too cold to use a saw the long-handled pruner is a good implement, and its use entails sufficient bodily

exercise to keep warm. There are always plenty of small branches in the bearing heads that this tool will handle.

If your orchard soil is a nice sandy loam or light clay loam you can save some labor by using the sod mulch system for a few years, instead of cultivating, but I am always afraid to mention sod mulch without the use of the "soft pedal," as it is hopelessly out of order on many of our good orchard soils. Then there is always the temptation, on the part of the novice, to draw off a few loads of luscious hay instead of leaving it on the ground where it belongs. Some of the finest and quite the best colored apples that I ever grew were produced by an orchard under this system, and I would not hesitate to use it on a nice friable soil at any time; but cultivation is vitally necessary on the harder soils if you are going to get real crops. Late fall ploughing is good practice in most parts of Ontario, if the orchard has been regularly cultivated, and makes work much easier in the spring. The method of leaving the trees standing in a sod strip ten or twelve feet wide will save a lot of time, and in so far as I have been able to judge, neither the trees or the crop are any the worse than under complete cultivation. I believe that Mr. Gibson, of Newcastle, one of our largest apple growers, has used this system of cultivation for a number of years, and is still using it, so this should be good evidence that the method is profitable. In my own limited experience I can vouch for the fact that it saves about half the labor. Really the slow part of the work is the last five or six feet next to the trees, whether ploughing or cultivating. This would seem like a real war time plan of cultivation and should be in general use as it suits all soils.

There are two sprayings which we should consider indispensable: the one just before the blossom opens and the one applied when the petals have about all fallen. I do not see how we can avoid two good drenchings at these periods and have any certainty of a good crop, but the dormant spray might be omitted if you are sure that you are free from San José Scale. Of course we are speaking now of orchards that have been cared for, and therefore free from Oyster Shell Bark Louse. If your orchard is in a scale infected district, or if you do not feel like taking any chances, the dormant spray might be applied in the late fall, or at any time that the mixture could be handled without freezing. This covers what we regularly call our three standard sprays, and subsequent applications should be governed entirely by local conditions. I almost invariably apply at least one spray after the fruit has formed, and sometimes two, but I have seen many seasons when these sprays would be quite unnecessary and therefore unprofitable in certain districts when they might mean everything in a section not many miles away. This is one place where judgment on the part of the grower is of great value, as nobody can advise him unless he is right on the job so as to understand the local weather conditions. We are all watching the process of dusting with a great deal of interest, and the procedure looks very rational indeed. It is simply an old practice revived, and the experience of years ago demonstrated that it would control fungus diseases, but the manner of application was chiefly by hand, over very small areas. Personally, I have a great deal of confidence that it will finally supersede the present cumbersome method, but I fear that many improvements are necessary both in the machinery and the material before we can make the change. A good grower pretty nearly knows what his "batting average" is going to be when he starts his men out with the spray pump; they understand the work thoroughly. Records up to date have not shown dusting to give any cleaner fruit, and the real good records.

have mostly been produced experimentally by men of more than usual ability along these lines; but we are all ready to admit that the process entails less work and the cost is not much greater. You cannot junk your spray outfit anyway until something is put in dust form to control San José Scale, and the new method will probably be handed to us on a more practical basis by that time.

If we are blessed with a good crop of apples this season we will have to depend very largely upon female help. The young women and girls of this country have responded nobly to the call for help from all quarters. Their assistance during last year's fruit harvest was invaluable, and we should be ready to pay par value for their labor every time. We must not forget that while true patriotism is calling these noble women to manual labor, we are being helped over stony places, and we should do our utmost to make life pleasant and agreeable for them. Pay them the best wages that conditions will afford; but we have not done enough then unless we reciprocate in the spirit which sends these willing hands to help us. A great deal of the picking will have to be done by women; and women sorters, after some experience and careful teaching, will distance men altogether.

The pessimist will soon be wailing his old familiar tune about market difficulties for 1918. You are all familiar with that time-worn bit of advice that we like to give to the boy who is standing on the threshold of life: "There is always room at the top." This applies to apples as well as everything else. First class apples, properly packed, will always sell well; the poor ones have a right to go begging for a market.

The effect of the war on the farm apple orchards has been serious, but there is yet time to rejuvenate a great many of them. It is our duty as fruit growers to lead in the attempt.

THE CHAIRMAN: One important point Dr. Grant brought out is in regard to not neglecting the orchards. I think it would be foolish to let the orchards go to ruin. I was attending a convention in Rochester two weeks ago, and the gentleman from Mr. Hoover's office made an address. He said he was asked the question whether it was wise to change arrangements and grow grain, or raise more cattle or pigs, and neglect the fruit growing, and his advice to them was not to change. He said one man wrote him saying that he intended to grow ten acres of watermelons, and he wanted to know if it would be better to change from watermelons and grow wheat, and Mr. Hoover's assistant told him to grow watermelons, because he said that would be useful to somebody, and this man understood the growing of watermelons and may not make as great a success with growing wheat. He emphasized the great need of food, and he thought it would be better for everybody to stick to their own line, because in that way they would help more than they would if they changed to something they did not thoroughly understand.

MR. PATISON: My opinion is that the average farmer should not be allowed to have an orchard at all. It is in the small orchards that the San José Scale flourishes, and if it would only spread over them all and clean them out, it would be a very great help to the fruit business. The man who is running a general stock farm will not take an interest in an orchard, and that is the reason why so many orchards are a nuisance.

THE LABOR SITUATION FOR FRUIT FARMERS.

MISS HARVEY, TRADES AND LABOUR BRANCH, TORONTO.

Dr. Riddell gave you a good deal of information last night about the labor situation with regard to the farm, and what we hope to do through our Department, and I will not waste any time outside of the question of sending out girls and women to work on fruit and vegetable farms. Last year, as you know, we sent out about 2,500 workers, some for as long as five months, some for only two or three months, and some business girls could only give a fortnight. When these girls were sent out, the information we gave them about wages was that they would be paid the best rates, and they would be able to get \$1.50 a day if they were good pickers, and if they could not make \$1 a day in fair weather, they would be asked to go home.

We were of the opinion at that time that a good picker could make at least \$1.50 a day, but of course they did not do it, and we soon had to relax the rules that they would have to go home, because some of them could not make an average of \$6 a week. In fact fifty per cent of the girls did not make \$6 a week; fifty-four per cent. of them made between \$5 and \$7, and one-sixth of the girls made under \$5 a week. The only girls who made as high as we had led them to think they would earn made about \$9 a week, and they were in the Queenston District, and they were paid at a higher rate than the girls in the camps.

This year there is going to be a still greater demand for women labor, and we are up against a problem of whether we can get the girls to go again, who went last year on erroneous information. We did not give them this information intentionally, but we had a wrong impression as to the amount of money that could be earned. Unless the farmer will take the trouble to put in vegetables so that the girls can have steady work during the time they are out, it will be difficult to get the girls to go. Two hundred of the pickers who live in Toronto, met in the fall and decided that unless they could get about \$9 a week next year that they could not afford to go out again. They have to pay \$4 a week board, and certainly the board will not be less than that this year. If they secure their board at the farmer's house, the farmer could board them a little cheaper, but we have to pay people to go out and cook for the girls and to look after the sanitary conditions, and I am convinced that we cannot do it for less than \$4. We may have to charge a little more than that.

In a big camp of girls we could not allow them to do their laundry in the house, and another thing is they have not the time, and therefore they have to pay for their laundry. They also have to pay their railway fare and for the clothes that they wear out, because they certainly wear out more clothes than they would at home.

We do not want to compare the girls with men, but comparing the wages they get with the wages that the boys get they were not as well paid, and a girl can do just as much work as a boy of fourteen or fifteen; and boys of fourteen and fifteen got about \$14, board and laundry, per month, and boys of sixteen and seventeen about \$20 per month, and boys of eighteen and nineteen got about \$25 or \$30 per month, board and laundry.

The girls are asking \$9 a week, and they pay \$4.50 for board and laundry, which leaves them about \$17 or \$18 a month, and that is not a high wage. Of course men get more than that, and they earn more than that.

In the discussion I had with the girls in Toronto, some of them got up and said, "The farmers cannot afford to pay that." There was always somebody in the meeting who would say, "No, that is not fair. The fruit growers cannot afford to pay that." We want a fair rate but we do not want what is not fair, and what the girls ask is to be able to earn \$9 a week without their board, and they will pay their board out of that. They were willing that they should be paid a straight \$9 a week, and they suggested if their board was paid for them and they were hired at 15c. an hour, taking into consideration the time they would lose through a slack season and through wet weather, they would still earn about \$9, or if the men did not want to pay their board, they might pay them 25c. an hour.

MR. PATISON: Do you know what a man gets in the Niagara District? He does not get more than \$3 a day and his board is not paid, and you are asking 25c. for girls. The ordinary woman working on the farm down there packs twice as much as one of these girls, and she only gets 15c. an hour.

MISS HARVEY: Yes, I know that is true, but these women have their board and laundry from their husbands. They do not have to pay their board, and they are just doing this for a little extra money. I do not think the women should work for less than \$9 a week, because if they work for less than that, they will not be getting a living wage, and we call that sweated labor. The girls who were out last year have said that they cannot go out again unless the terms are such that they can clear their expenses and earn a little. I am getting letters from a great many people who did not go out last year, and I brought over a typical one to show you the attitude of the girls. This is from a teacher who was willing to go out for two or three months. I had written her telling her that the Niagara Fruit Growers' Association would guarantee the girls \$1 a day rain or shine, and that they were to be paid for piece work at a slightly better rate than last year, and this is her reply:

"Your letter of January 30th received. The last paragraph is not just quite clear to me. You say it has been suggested that the fruit growers would guarantee \$1 per day—with or without board? If board is to be paid out of that amount and clothes bought and railroad fares and other expenses, as I see it, it will not meet these expenses. Personally I want to help in this way, but if the Government and the farmers are in such need of help, surely they can afford to pay the girls enough to meet expenses and a little for working all day in the hot sun.

"Am I mistaken in the meaning I take out of the last paragraph? If this is correct, I am afraid I shall either have to make private arrangements or take temporary work in an office, as I cannot afford to give my summer's work for nothing. I should be glad to hear from you further."

That is the sort of letter I am getting from all over the country, and I cannot make people go out and help unless they are properly paid.

The negotiations between the pickers and the executive of the Niagara Peninsula Fruit Growers' Association have reached a certain stage, and I will give you the results. We have not come to a satisfactory agreement. The girls ask for \$9 a week on a flat rate, or by the hour sufficient so that it will amount to \$9 a week. The men offer in return to pay \$5 a week, rain or shine, and put the girls on piece work. One-third of the girls only got \$5 a week last year, and they said, "This is just about the same as last year, and we are not being offered anything better," and they discussed the rates offered by the men, and with one or two exceptions they felt they were very reasonable. Then the men offered to pay \$1 a day rain or shine. They thought that when the girls gave up their holidays and had to live in a strange district, they should get at least \$1 a day all the time they were there, and in return for that, the girls must do any work asked of them. She may be putting handles on

baskets or helping with the housecleaning or helping in the greenhouse—all sorts of things like that she must do. But whether she works or not she gets \$1.

Then piece rates were suggested, and it was said that if on any patch or any orchard the girls could not earn 15c. an hour, they were to be paid at the rate of 15c. an hour. Last year we had some girls who were working on gooseberries that only made 40c. in a ten-hour day. They should never have continued to do the work, and they should have refused to work at that rate. Of course that was simply a case of an isolated grower imposing on the girls, and the arrangement this year is that if the whole group of girls are not earning 15c. an hour, they are to be put on at that rate. They are to be paid 2c. a box for strawberries and 3c. for raspberries, black currants 40c. for an 18-pound basket, and cherries 20c. for a 15-pound basket, and gooseberries 2c. a box, except for the English variety. Red currants 20c. for an 11-quart basket, and for picking peaches, pears, grapes and plums 15c. an hour.

Last year some of the girls found that as the fruit picking does not begin until after eight in the morning, they could not get in their ten hours a day, and, therefore, could not make \$9 a week, and they are willing to go out at 20c. an hour or at \$9 a week straight, but they are not willing to work for 15c. an hour unless they are picking peaches, plums and pears.

There is very little doubt that we can get 5,000 or 6,000 girls to go out, if you will give a reasonable living wage. The Y.W.C.A. have offered to take charge of the camps again this year, the same as they did last year. I cannot tell you what it means to us to have that offer from the Y.W.C.A. If you could see the number of anxious letters we get from parents asking who is going to look after their girls and asking who the woman is who will be in charge of the camp, and when we write back and say the Y.W.C.A. is going to look after the camp then there is no question whatever, because that is an Institute that is recognized throughout the country as efficient and as standing for the right standard of housing conditions.

Last year they did this work at a loss of \$3,500, but this year we hope that camps can be arranged and that the girls will have cottages that can be used for kitchen and dining room—and we can probably get an unlimited supply of tents—and we will not have any rental charges. The girls in the district can probably get hold of a house that will do them for kitchen and dining-room at a reasonable rate. The Y.W.C.A. are willing to give their services and provide the people to do the cooking and looking after the girls, and they will do the buying of supplies, etc.

If you want us to take this work in hand you will have to let me know at once, because it will be necessary to go ahead with it immediately. It is not as if we were only going to open up one camp, but if we are to open up fifty camps it will be impossible for us to handle it unless we hear from you within the next few weeks exactly where the camps are going to be. I know that the men prefer to wait until about May when the trees are showing some indication of what the crop is going to be, and we won't, of course, make binding arrangements until that time. I mean a grower may say, "I want six girls throughout the season," and then when it comes near the time he might say, "I am going to have a particularly good crop, and I want more girls." Once a camp is arranged it is an easy matter to send in more girls, but if no camp is arranged for at all, we cannot do it on short notice. We are not permitted to send out girls unless we can assure the parents that they will be well looked after, and, therefore, we want you to make a definite statement as to whether you want the girls or not.

THE CHAIRMAN: Miss Harvey has given you a very clear and concise account

of the situation as it is at the present time. It is up to you to say what you want done.

MR. FOSTER: We are greatly indebted to Miss Harvey for the very clear manner in which she has put this question before us. There are always two sides to every question, and we want all the information possible. Speaking for the Burlington district, I would like to say that last year we did not take advantage of the proposition that was made to us early in the season. Miss Harvey called on me one morning and we did not entertain the question at all. We did not think we had a season in which we could use that sort of help. Part of the time we would need more help than they could possibly furnish us, and part of the time it would be slack.

As far as the scale of wages is concerned I do not think it is very satisfactory. It seems to me that if I had a man or woman that I was paying 15c. an hour for doing a certain work, and if I got other help in to do the same sort of work I could not pay them more money. That is the way it strikes me. You would have to pay the same rate per hour in both cases.

MR. BUNTING: As a member of the committee that has been dealing with Miss Harvey and the young ladies of the National Service Section, I want to emphasize the fact that the committee felt under very deep obligations to Miss Harvey for the very great efforts she made to harmonize what seemed to be the conflicting opinions in connection with the negotiations as they proceeded. The very fact, as Miss Harvey has just stated, that these negotiations have come to a position where they are practically settled, with the exception of one item, is largely due to the efforts Miss Harvey has put forth in bringing together the divergent views of the different committees. The desire of the fruit growers was to avoid disturbing existing arrangements with their permanent help. That was a serious point with the fruit growers, and they felt that they could not concede that point to the young ladies because it would interfere with their existing help.

But we want to have the girls protected in every way possible, and we were willing to fix a minimum rate, and where the girls were efficient and capable, we would give them advanced rates.

I have every hope that the proposition as outlined between the two committees will be accepted in good faith. Some of the young ladies have intimated that in some isolated cases last year they felt they did not receive fair treatment where they were employed, and the committee called the attention of the young ladies to the fact that the whole fruit growing fraternity should not be penalized because certain individuals did not do the proper thing. It has been arranged that there shall be a committee of two fruit growers and two of the young ladies who will adjust matters of that kind and penalize any individual fruit grower who does not act in a fair and liberal way towards these young ladies. (Applause.)

THE CHAIRMAN: I think as a whole the fruit growers appreciate the work which the girls did last year, and the sacrifices they made in coming out and attempting to do work with which they were not familiar. They were willing to put up with great inconvenience for the sake of helping out the situation, and I hope that arrangements will be concluded this year that will be perfectly satisfactory to the young ladies.

MR. FISHER: Permit me to offer a suggestion which I think is entirely reasonable and which might be accepted by Miss Harvey and by the girls. I think it would be only fair that the employers of these girls should pay the transportation, say from Toronto to the point where the girls go, and return. That would put everybody on a fair basis. For instance if a girl should ask to go to Clarkson,

which is a very short distance and an inconsiderable expense, she would be on the same footing as the girls who went to Queenston who would be at greater expense for railway fare.

MISS HARVEY: There is one point that I would like to speak of for the benefit of those who did not have the girls last year. A fruit grower can say he wants five girls through the whole season, and that during the raspberry crop he may need fifteen girls. If the camp is established it will be easy for us to put in the extra girls. There are girls who are more than berry pickers. Some of them who went out last year understood how to run an automobile, and they have often taken the motor cars and gone to the market, and some of them could take out a spraying machine, two of them together without any man's help, and spray the trees, and some of them did horse cultivation for weeks at a time. We had some girls who, for a month, did nothing else but cultivate, and they also did pruning and all kinds of work of that kind, tying up grapes and cutting out raspberry canes, and I do not think the men need feel that the girls are going to be on their hands when there is no picking to be done. Over sixty-five per cent. of the girls were over twenty years of age, fully grown strong girls, and they can do as much work as a boy of eighteen or nineteen.

MR. FLEMING: With reference to paying the transportation, I do not think it would be quite fair. We might arrange to pay the return fare from Toronto, otherwise it would be a difficult proposition, and some girls might only work for two or three days on one farm, and then change over to some other place, and that would create a great deal of difficulty.

DR. GRANT: We are all ready to admit that there is a very serious labor shortage, and if we have a large fruit crop this year, conditions will be worse than they were last year, and it seems to me what we should do is to get busy with the girls and be reasonable in every way, and do not let them get away from us, because we will need them very badly, and we will have to have them.

MR. DAWSON: I happen to be one who was fortunate enough to get hold of some of these girls. I had thirty-five acres of corn, eight acres of mangels, three acres of potatoes, and I put the girls in the field at 20c. an hour, and I had men working at the same work at 30c. an hour, and the girls did more work at 20c. an hour than the men did at 30c.

Any person who has seen the work these girls did last summer will quite agree with me that they will do pretty good work. My potatoes were so well done that I had to keep telling the girls not to be so particular with the work. And these were high school girls of sixteen and seventeen. I had a Ford car with a truck attached to it, and I had the girls ploughing for me, and they could do just as good work as a man. All they now want is a little more money to encourage them. I do not think 15c. an hour is sufficient, and I think we should pay them a certain sum per week. You cannot get men to work for you by the hour. My policy in hiring men is to pay them a minimum wage, and then I pay them according to the work they do afterwards, and I suggest the same policy should be adopted with the girls.

A MEMBER: Has there been any discussion on the part of the young ladies with regard to working nine hours a day instead of ten?

MISS HARVEY: Yes, and the average city girl feels that nine hours a day is sufficient. It would be to the farmers' benefit if they did not ask them to work longer than nine hours because they really cannot keep it up for ten hours, especially if they are hoeing.

MR. GRIERSON: I do not do much hoeing myself, but I do not think I would

ask any girl to work more than eight hours a day at that job because hoeing is hard work.

MR. FISHER, Queenston: I did not have any of the National Service girls last year. I had some of my old hands that have been with me for four or five years and some new hands. We did not feel that we could strike a wage that could fit in with everybody. If we fixed a minimum wage of 20c. an hour it will not hinder me or anyone else from going and saying to the girls, "We will give you 20 or 25 cents an hour." I like to pay the girl who does the work the money. If I have a girl at 20c. an hour and she does not earn it, and if I have a girl who is worth 25c. an hour, I want to pay it to her. I have heard a woman say: "I packed ten baskets of apples, and the girl next to me packed only five, and she is getting just as much as I am," and the girl that is packing ten baskets is worth a great deal more because she is speeding up the others.

MR. BUNTING: With reference to the eight, nine or ten hours a day, that was a point that came up for discussion, and the fruit growers realize that as Dr. Grant has stated and Mr. Grierson has stated that in many cases, to ask the girls to work ten hours was more than their strength would justify. Most of us know that ten hours a day obtains on the farm, and consequently the committee were reluctant to adopt eight or nine hours a day, in as far as the National Service girls were concerned, because that might have an affect on the other workers.

THE CHAIRMAN: We all realize that it is impossible for fruit growers to stop work at five o'clock in the afternoon, and if a girl does not feel she is strong enough to keep going until six or seven o'clock, she can quit at five, but if they all quit at five o'clock it would simply demoralize the business. We cannot get to work early in the morning on account of the wet, and we have only a certain time in which the fruit can be shipped, and we must avail ourselves of every possible minute during the time that we can work.

MR. CARPENTER: We have offered 15c. an hour as a minimum wage, and when the peach and plum picking begins we will pay 20c. an hour, and if a man is anxious to get his peaches off and feels like paying 20c. an hour he is at perfect liberty to pay that much, but I do not think we should undertake to pay a minimum rate of 20c. an hour.

MISS HARVEY: I do not think Mr. Carpenter realizes the difficulty I have. If any girl is not earning her 20c. an hour and is only worth 15c. that can be adjusted by the secretary, but if you do not make better arrangements than last year I will not be able to get the girls. If you want me to get them I will have to organize a big campaign at once, and I think I will be able to get at least 5,000 girls.

MR. LOWREY: We employed the National Service girls in Niagara district last year. Formerly we used foreign help. I had no idea these girls would come up to the mark, and I was agreeably surprised. They did the work better and more intelligently than we have ever had it done before. We did not pay them less than 20c. an hour, and I paid some 25c. an hour, and in some cases I paid 30c. an hour, and they were willing to do any kind of work that we put them at. I employed them from the 10th of September until the latter end of October. They picked peaches, pears, plums, apples, potatoes and did all kinds of work on a mixed fruit and vegetable farm.

THE CHAIRMAN: The situation in our district was different to what it was in other districts. We had a very heavy peach crop, and I paid as high as 40c. an hour to pickers to pick peaches.

A MEMBER: I have a patch of raspberries and lots of girls earned twice as much as others picking the fruit. Some are not worth 10c. an hour, and others are

worth 25 and 30. If you start them with an inducement of 20c. an hour you are going to get a lot of girls out with the mistaken idea that they are going to get that wage whether they work or not.

MR. FISHER: I move that when the tree fruits come in, the pears, plums, peaches and apples, that the minimum wage be \$9 a week.

MR. FOSTER: I second that motion.

MR. ONSLOW: Some of the girls want to be off Saturday afternoons.

MISS HARVEY: When the fruit season is on and the fruit has to be picked the girls are certainly willing to work on Saturday afternoons; but if it is a matter of doing ordinary work, raking, hoeing or anything like that kind, then the girls do not think they should be asked to work on Saturday afternoons. We expect the men to use common sense in a matter of this kind. It does not do to tire the girls out, but when there is a rush of picking to be done they are willing to work on Saturday for their \$9 a week.

A MEMBER: We are willing to let the girls take a half day off any time during the week, but Saturday is a very important day with us, and we would rather have them work Saturday afternoons. I have been discussing the question of \$9 a week with Mr. Bunting, and it is possible that we may make arrangements to stand on that, and when the peach picking starts in September we would give them a maximum wage of \$9 a week, and \$6 to apply up to the first of September.

MISS HARVEY: Whatever time the tree fruits begin.

MR. FISHER: Apples, pears, plums and peaches.

THE CHAIRMAN: It has been moved by MR. FISHER, Seconded by MR. FOSTER, that a minimum wage of \$6 shall apply until the tree fruits, such as peaches, plums, etc., come in, and from that time on a minimum wage shall be \$9 a week. I think myself that would be a good arrangement and will probably be accepted by both parties.

MISS HARVEY: Yes, I think it would.

MR. FISHER: I would be willing to amend the motion so that the Committee of the Association and the girls should fix the date when the \$9 rate should begin.

THE CHAIRMAN: Then the motion will be amended that the \$9 will be paid from the 1st of September or from a date to be fixed between Miss Harvey and the representatives of the fruit growers.

The motion carried.

MISS HARVEY: I think there is no question but that I can get the girls on these terms. These are practically the original terms the girls asked for.

MR. JEMMETT: Will some one be in charge of the labor in the different districts. It would be a great blessing if there were local secretaries to whom troubles could be referred, because some girls are worth a great deal more than others. Some girls I would not give for a carload of others.

MISS HARVEY: District secretaries will be appointed and paid by the Government, and their whole work will be adjusting all sorts of problems that will be raised in the districts. For instance there will be one secretary for Norfolk County, and that secretary will be within reach by telephone of any camp, and there will be a girl in each camp who must report to that district secretary, and it will be the duty of that secretary to see that the girls get the right treatment from the farmers, and the farmers will also be permitted to write to the secretary and report any troubles that they may have. If there are girls who do not work well, she will have absolute power to send them home on one day's notice, or if the farmer prefers to keep her on at a lower rate of wages she may stay on, but we want to insure justice on both sides.

PROPOSED CHANGES IN THE STANDARD ELEVEN-QUART BASKET AND APPLE BOX.

P. J. CAREY, DOMINION FRUIT DIVISION, TORONTO.

At every convention this matter of standard packages is more or less discussed, but there are two reasons why it should be brought up at this time, the main reason being that it is generally conceded by the whole fruit industry that there is a crying need for a change, and that the package situation is far from being satisfactory. The second reason is that there is the possibility of legislation being put through at this coming session with regard to matters of interest to the fruit industry, and along the line of standardizing packages.

I wish now to take up three packages, the basket, the box and the apple barrel. The merits and demerits of the basket have been threshed out scores of times, and we are all pretty nearly agreed on which basket is the best. We have in the present eleven-quart basket a package that is too shallow to hold three tiers of large peaches, and that has been the trouble with it all along, and that is why we have had to have what is known as the deep eleven-quart, and also the nine-quart basket, which holds two tiers, and the deep eleven holds three tiers of large sized peaches.

The deep eleven has some virtues, and I know two or three men who use it, Mr. Robertson and Mr. Fleming, and I am ready to admit that it has some good qualities, but it is not satisfactory for loading on cars, and it does not bundle.

The nine-quart is not satisfactory because it does not hold as much as the eleven-quart, and is often sold at the same price.

At a meeting held early last year at Grimsby it was decided almost unanimously to eliminate all baskets except the six-quart and the eleven-quart. A committee was appointed with Mr. Hastings as Chairman, to take the whole matter up and arrive at some conclusion as to a uniform eleven-quart basket. The standard of the present eleven-quart is five and three-quarter inches deep, and the deep eleven-quart basket is six and one-quarter inches deep, and somebody made the suggestion that we should compromise and make the eleven-quart basket six inches deep. At last we arrived at a conclusion and blocked out a basket six inches deep, and had a block made and a number of baskets manufactured from that block. I have before me one of the baskets. It is six inches deep and holds a trifle less than eleven quarts, and I think that is much better than holding a little over. It does not matter how much it holds as long as that basket all over the Province is the same size.

I want to point out some of the good points of this basket. You will notice that the corners are square, and by the block being made the same shape at the top as the bottom the basket can be packed close together when not filled, and it also makes the basket stronger. You can see that it can be squeezed almost to a point, and yet will come out all right. I want it clearly understood that I have no desire to railroad any legislation through, because it is the business of the fruit growers to ask for the package they want, and I am merely a go-between. We made about seventy of these baskets and have tried them out, and we find that with proper packing you can put three tiers of large peaches in these baskets.

Q.—What about apples? How will they go in?

A.—I do not know that we tried apples, but of course apples will always come right. In packing peaches we pack them diagonally so that the cheek of one peach does not rest on the cheek of another, and I think that is the proper way to pack peaches. Then the small peaches we put them in without tiering, as it does not

matter so much how they are packed, and you need not be afraid that the inspector will find fault with the way the smaller peaches are packed.

We propose to make it a matter of law as to the number of nails that are put in the basket, the thickness of the materials that are used and the quality of the veneer, and the thickness of the bottom. The fruit growers have endorsed the present six-quart basket as all right, and it will come under the same regulations. There will also be regulations as to the thickness of the handle and the width of the strip, and the length of the handle, and every part of the material. We propose that the same uniform block shall be used by every manufacturer, and that every basket used in Ontario shall be made from that particular block, so that we will have an eleven-quart basket all over the Province exactly the same.

MR. HASTINGS: The committee considered all parts of the basket—the size of the material, the quality of the material, the number of tacks and nails, the width of the handle and the thickness of the handle, in fact every item that enters into the basket, and after a good deal of discussion that is the basket that was adopted by the committee. The committee was composed of Government representatives, representatives of the fruit growers and basket manufacturers. The only question left open at the present time is as to whether or not the manufacturers can handle it in sufficient quantities. It seems that there is a little more difficulty in making that basket with square corners than in making the former basket. My recollection is that the new basket holds exactly eleven quarts. However, that is the recommendation of the committee of which I am chairman. This basket more nearly meets all the requirements than any basket that I have been able to devise. The six-quart basket has already been adopted by the committee and also by the Niagara Peninsula Fruit Growers' Association. The flare of the six-quart basket is to be reduced to a minimum so that it will nest and bundle properly.

MR. FISHER: The size of the tacks and nails are specified. Do you allow wire stitching to be used?

MR. HASTINGS: Unfortunately for those who have machines for making baskets, they say they cannot make that basket on their machines, and that was one of the big discussions we had at our meeting with the manufacturers. The present basket is made with round corners, and they state they could not make their machines work on the semi-square corners.

A MEMBER: What will be the additional cost of this basket?

MR. HASTINGS: They said they would cost a little more inasmuch as the material used around the corners would be a little better, but the fruit growers will not mind a little additional cost if they get a first-class article. I do not know that it should cost very much more.

MR. FISHER: I was going to ask whether the fruit basket manufacturers were agreeable to get new machinery to make these baskets at their own expense.

MR. CAREY: That matter was brought up, and they seemed to be quite agreeable. They would have to get new blocks in a short time in any case. I asked them to come here and raise any objections that they might have, but nobody has turned up to make any objections, so, therefore, I think they are quite agreeable to manufacture the new basket.

THE CHAIRMAN: This matter of baskets has been hanging fire for the last two years. We held meetings first at St. Catharines and then at Grimsby, and then we held a joint meeting, and this is a result of all the deliberations summed up, and if there is any person who has any objection to that basket being made the standard basket we would like to hear from him. The basket is a quarter of an inch higher

than the other basket. The fruit growers of St. Catharines were perfectly satisfied with the old basket, but the growers west of us could not get their big peaches in the old basket, and we made a compromise with them. We expect to derive a great benefit from having a uniform basket. At the present time we are handling four different makes of baskets, and we cannot get any two makes that are alike. There is a little variation in depth and in the corners, and we have great difficulty in keeping the covers separate, and the growers also have the same difficulty. They take their baskets home and pile them up in the barn, and the hired man mixes the covers up, with the result that a great many baskets come to the shipping stations with covers an inch or a half inch too short, and in many cases the baskets are broken in putting on the covers.

MR. FISHER: I think it is the proper basket. The present eleven-quart basket not only makes it hard to pile in a car, but it has other difficulties, and I think we ought to endorse something that will be the standard all over Ontario. I think the handles should be made stronger—that is the weak part in the basket at the present time. The handles are made too thin.

MR. FLEMING: As one of those who have always advocated the deep eleven-quart basket, I wish to thank Mr. Carey and Mr. Hastings for the work they have done in connection with this matter. They have gone into the subject most carefully, and I am quite willing to consent to the reduction of a quarter of an inch. I think the sooner this is put in the hands of Mr. Johnson and the legislation gone on with, the better.

MR. ROBERTSON: I think from all appearances that this new basket is going to be a good one, and I am glad they are specifying the quality of the material so that we will have a real good basket. I think it will pay well to have a good basket even if we have to pay a little more for it. You will notice that the old basket on the table has a flaw in it, and there is a knot hole in the material, and you could not put that into any express train loaded with cherries or any small fruit and have the basket come through with its full supply, because if there is any opening the hands are sure to go in and take out some of the fruit.

MR. CAREY: I am satisfied from the class of men we have making the baskets that there will be no hold-up. I think the competition among manufacturers will take care of that.

Moved by MR. ONSLOW, seconded by DR. GRANT, that Mr. Carey's report on the basket be adopted, and that the Minister of Agriculture for the Dominion of Canada be requested to formulate legislation so as to put the result of the report into force at the earliest possible moment. Carried.

MR. CAREY: There will be no trouble as to the stock of baskets on hand at the present time. Mr. Johnson will see that the law will be framed so that the old stock can be all used up.

Now, as to boxes. We have here a Western apple box and a Canadian apple box. This Canadian apple box is made for the export trade only, but it has been used in the domestic market as well. I am about the last man to be converted to the American box, but the fact that this box has been adopted by the United States and by the apple growers of British Columbia convinces me that it should be adopted for the whole of Canada. There is only one firm in the West that is using the Canadian box; all the other apple growers are using the American box. There are two or three things in favor of the American box: it is the same length as our pear box, and for that reason the tops of all boxes would fit.

Another advantage is that we will get rid of the end pack entirely, and where

we get a flat or conical apple with the present box five tiers often comes too high, but with this box that will not be the case. Then the great advantage will be that we will not only have a standard box for Canada, but that standard will be the standard for the whole Continent of North America. I have tested out this American box for the last few weeks in every possible way, and I believe that it will be satisfactory. Here I have a three-inch apple that will pack five tiers. I have looked at thousands of these boxes in the West, and they have always come through satisfactorily. Thousands of cars of these boxes are coming into Toronto all the time. Where there is a danger of the apple being too large they leave them just a little bit looser, and there is no difficulty. Therefore, I am ready to adopt the American box as the standard for Canada.

MR. D. JOHNSON, Fruit Commissioner of Canada: I quite appreciate that the package question is one of the most contentious questions that we have to settle. Our British Columbia friends have had a great deal of difficulty in arriving at a conclusion as to what is the best box to meet their own requirements, but I think they are now nearly all decided that the Oregon or Washington box is the most satisfactory box. They are all using the American box with the exception of one firm; that is a very conservative firm and holds to the old Canadian box. If you were to ask me which of the two boxes I like best I would say the American box, because in my opinion it carries the fruit better.

In regard to the basket I can only say that we are waiting your recommendation and whatever the fruit growers decide upon will come into effect as far as I am personally concerned. This matter will have to be dealt with by the Minister, and if he approves of it we will put it through.

In our own orchard up in Lambton County we have been packing all our apples in boxes for the last three or four years, in the Canadian box, but last year we tried the Oregon box and would never go back to the other box. Mr. Hinds is here and can tell you as to that himself.

MR. HINDS: We used the Canadian box for some years and we were very reluctant to change, but we did change, and last year was the second year we used this Oregon box, and it has given us the greatest satisfaction, and we find that our clients receive the apples in better condition. We always get the end in one piece. We had a great deal of trouble one year in using the box with the end in two pieces, but we will never use that kind of box again under any circumstances.

A MEMBER: Do you get your material from the coast?

MR. HINDS: No, we get it all in Ontario, and the last two years we specified that the ends should be in one piece.

MR. BUNTING: What is the difference in the width of this box?

MR. CAREY: One half inch. It is 18 x 11½ x 10½.

Moved by ELMER LICK, Oshawa, seconded by F. LAILEY, St. Catharines, that the Fruit Growers' Association of Ontario endorse the Oregon box as the standard apple box for the Province of Ontario. Carried.

MR. CAREY: It has been stated time and again that the barrel is a package for everything except our first class fruit. I attended the Nova Scotia convention and a resolution was passed and put in my hands, and I was asked to read it at this convention. It is as follows:

"That steps be taken to secure legislation to bring our Act with regard to apple barrels in accordance with the American size and bring about a standard barrel for the whole Dominion."

When I was in the apple business, like most of the Ontario speculators, I was

quite satisfied to use the large barrel. Nova Scotia people were using a small barrel. Our trade was the export trade and we found that the people on the other side sold their apples by the pound, and they knew exactly what our large barrel held, and we got from 50 to 75 cents a barrel more than the people in Nova Scotia. We were quite satisfied to take from the farmers of Ontario a larger barrel than the law called for. The fruit growers got tired of giving more than the law called for, and I find on investigation that we have all sizes of barrels made in Ontario. The other day I saw in Montreal an Ontario barrel that only measured $27\frac{1}{2}$ inches outside. That of course was a violation of the law, but I find that there are a half dozen different sizes in the city of Toronto. The people have grown wise. The old time buyers have passed away, and the co-operative associations have been wondering why they are using the larger barrel when it is not necessary according to law. The American barrel has a $28\frac{1}{2}$ inch stave, $26\frac{1}{4}$ inches between the heads, $17\frac{1}{2}$ inches diameter at the end, and 64 inches circumference at the bulge. The reason for the outside measurement at the bulge is that the inspector can measure a full barrel. That is the barrel adopted by the United States. I have a letter from J. T. Bush, President of the Western New York Association, and he is sending me over the barrel, and he says, "I believe the better we can get our products and containers standardized, the better it will be for the industry and all concerned."

The standard barrel has already been adopted by the Federal Government of the United States, and if we adopt the same size, we will have a uniform barrel for the whole of the North American Continent. The American barrel holds about three bushels, or a little over 7,000 cubic inches. It is a well shaped barrel, and the Nova Scotia people have adopted it. One we are using in Ontario holds about three bushels and a peck, or a little over. The American barrel holds a little over three bushels.

MR. MACKLIN: I am in favor of the American barrel if it is smaller than our own. We one time used to have a two and three peck barrel, and then we had a three bushel barrel, and the one we have now takes $12\frac{1}{2}$ pecks to fill it. It certainly holds more than three bushels.

A MEMBER: I am in favor of the standard barrel. I would not like to see it made any larger. What we want is a standard barrel, and we should have the same standard as the Americans.

MR. LICK: We are under different conditions now than we were a few years ago. Our export trade has gone, and we are freer to make any change than we will ever be again. There are a number of different sized barrels. I do not know but it would be just as well to follow the Nova Scotia resolution and adopt the same barrel, and I am going to move, seconded by Mr. Grierson, that this Association adopt the American barrel as a standard barrel. Carried.

GRAPES—OUTLOOK FOR 1918.

F. G. STEWART, ST. CATHARINES.

In the outlook for grapes for 1918 we are faced at once with some serious problems. The first one is pruning. The weather has been so cold and the snow so deep, that what with the scarcity of labor, hardly one-tenth of the vines have been pruned yet. Usually, at this time of year, more than half of the pruning is

done. As an example of this state of affairs let me tell you of the labor problem in the vicinity of St. Catharines. On the Queenston and Grimsby Stone Road, from St. Catharines to St. David's (which is a matter of eight miles through mixed farming country), only one farmer has a hired man. One fruit man with a hundred and forty acre farm, has forty acres in grapes with not a vine pruned yet, nor any help in sight. I am afraid it will be well into April before pruning will be finished, if done at all. Grapes should be pruned early, so that the ends of the canes will have time to dry before the sap begins to rise. If not the sap will flow from every cut cane, and this loss or bleeding will retard the growth and make the fruit a week late in ripening.

Our second problem is, "What shall we do with our grapes should the Federal Government prohibit the manufacture of native wines?" If this should occur, then these thousands of tons of grapes will be thrown on the market. Will this not mean a glutted market with ruinous prices for the grower? In the Niagara District alone, which comprises the counties of Lincoln, Welland and Wentworth, the grape production according to the 1911 census amounted to 14,728 tons. The increase of the year 1910 over 1900 was 41 per cent. This being so, we are safe in placing the increase of 1917 over the year 1910 at 20 per cent., which would make at a conservative estimate 17,673 tons for this year. Of this sum, the wineries here claim they use 7,000 tons. Fully another thousand tons for wine-making are shipped to Quebec, Northern Ontario and Manitoba, making in all 8,000 tons for wine. For grape juice 950 tons are used, so this leaves fully 8,723 tons of grapes to be marketed in baskets. The grower must sell these at from 22c. to 25c. a basket to make a living wage, at the present high cost of labor, baskets and living generally. Everything has advanced in price. We used to pay \$28 per M (thousand) for baskets, with an additional \$1.50 per M for handling. To-day baskets are quoted at \$59 per M, with \$3 per M for handling. Let us count up the cost of selling 100 baskets at 25c. each, or \$25 worth.

Baskets (to-day)	\$5 90	per hundred
Handling baskets	30	" "
Freight	3 00	" "
Commission at 10 per cent.	2 50	" "
Total expense in marketing	\$11 70	

Leaving \$13.30 for cost of production and profit. Now, should 8,000 tons or more be thrown on the market this year, it will mean 800 carloads at 10 tons to the car. As the grape season extends over about four weeks, of five shipping days a week, or 20 days altogether, it will mean 40 carloads extra each day to be sold. Should this happen and prices drop to even 14c. a basket, it would leave only \$3.40 per 100 baskets for cost of production and profit. In fact, I doubt if they would all be sold.

In these figures I have not taken into account the returns from Essex, Kent, Halton or Peel, which would have given an additional 787 acres according to the census of 1911.

A clause in the Ontario Temperance Act permits the manufacture and sale of native wines. So far, this has protected the grower with his surplus of grapes which he cannot market. But should the Federal Government prohibit the manufacture of wines, what will become of the grape growing industry which we have been building up for the past forty years? Until this point is settled, I would strongly advise against the setting out of a single vine more for commercial purposes.

The above figures of quantities can be verified from the census of 1911 with the exception of those from Wentworth. In the returns, only those from the Township of W. Flamborough were given. The totals for Wentworth should be 2,095 acres, producing 10,753,198 pounds of grapes.

PEACHES—OUTLOOK FOR 1918.

HAMILTON FLEMING, GRIMSBY.

I have been asked this afternoon to give my opinion as to "The Outlook for 1918" in so far as peaches are concerned. Any remarks I may make I hope you will consider as merely an introduction of the subject. I cannot say that on an average during the past ten years I have lost money in the peach business, but I *will* say that at no previous time have I been more pessimistic as to the outlook than I am this year. The prospects for a large crop are by no means bright, and for the past four seasons the majority of peach growers in the Niagara District have been very hard hit. In 1914 the peach crop was a complete failure, while in 1915 and 1916 the crops were either light or prices low, while in 1917 the crop was in most districts light; the prices received were, however, in advance of previous years, but owing to the war, the increased cost of labor, spray, fertilizers, feed, baskets, tools, in fact everything connected with the fruit business, made the net profits on the whole less than those of previous years.

I consider it premature to say to what extent the buds have been injured by the severe frosts of the present winter, the thermometer registering as low as from 15° to 25° below zero on the night of the 4th of February, but the trees having gone into winter in good condition, the leaves falling naturally, and the wood well ripened before the severe frosts came, the results may not prove so disastrous as might be expected, and the fact that we have had it steadily cold throughout has prevented any premature swelling of the buds. From tests made by myself and others up to 11th February, there appears to be a fair showing of healthy buds, with the exception of Elbertas, which have suffered from frozen buds to quite a large extent.

At the time of the severe frost on the 4th of February there was fortunately a good covering of snow on the ground which would probably save the trees from root injury. Unfortunately, however, about the 12th December the thermometer fell to 12° below zero while there was not any snow on the ground. It is, of course, too early to say if any trees have been killed in this way.

The outlook regarding the proper distribution of the peach crop is still in a most unsatisfactory condition so far as the Niagara District is concerned, and is likely to remain so until a central organization has been formed.

The transportation outlook at the present time looks hopeless. The supply of cars, should there be a large crop, would be wholly inadequate. This might be remedied to a large extent by the more extensive use of motor trucks. Unfortunately, the road between Hamilton and the Niagara River, linking up with the Toronto-Hamilton Highway, is not in a fit condition for heavy traffic, but it is to be hoped the Provincial Government will, as a war measure, at once take over this trunk road as a Provincial Highway, as the food products grown in this district are enormous.

The outlook in regard to labor, at least so far as male help on our farms is concerned, is a problem which will have to be solved by the Director of Agricultural Labor. In regard to female help for the lighter work of picking and packing of peaches, I feel sure, judging from the loyalty which the women of Canada have previously shown, that they will again help us, more especially as the Food Controllers of Canada and the United States have pointed out that fruit is a necessity and should take the place locally of less perishable foods which are required for export.

Thanks largely to the very thorough manner in which the Government officials and their inspectors have carried on their work, "Little Peach" and "Yellows" are well under control, and as every up-to-date fruit grower now sprays his orchard, little is to be feared from San José Scale.

The fact that the fruit inspectors are now devoting more of their time to the inspection of peaches put on the market, has been, and will be, a great encouragement to the careful shipper. In some cases of late, peaches have been put on the market without being sorted or graded, simply "tree run" in what is known as the "heaped bushel basket." If this practice continues or increases in 1918 it will be detrimental to the peach market, as no matter how careful pickers may be, peaches not fit for consumption will get into the baskets.

I did not intend to say anything regarding the question of tariffs on peaches, but as the matter came up at yesterday's session, and as it is a matter of the most vital importance to peach growers, I will take this opportunity of saying that, in my opinion, were anything in the nature of reciprocity in peaches with the States sanctioned by the Government, Canada would be swamped with peaches. New York State and Michigan alone grow ten acres of peaches to one grown in Ontario, and their peaches are on the market before ours, and were any reduction on the present duty made, the outlook for 1918 would be of the gloomiest nature, and it would in all probability kill the peach industry in Ontario.

MR. FLEMING: I think the work that has been done by the Food Controller, more especially the Fruit and Vegetable Department, will help us very much, and we will be able to organize more thoroughly than we otherwise would have been able to do. I have great hopes that this licensing of the wholesale dealers in fruit will be a benefit to our industry.

I wish to take this opportunity of thanking Mr. Hodgetts, who at all times has given me any information in connection with fruit growing, and also Mr. Palmer of the Experimental Farm. My knowledge of peach growing, such as it is, has been got very largely from attending associations such as this, and from the help I receive from these various departments.

PLUMS—OUTLOOK FOR 1918.

A. ONSLOW, NIAGARA-ON-THE-LAKE.

What is the prospect for the coming season—for the man who is interested either as a commercial or family garden producer?

As the seasons change from spring to fall, so each and every year brings with it varied conditions of which no man can prophesy, and in every climatic change the coming next year's crop is affected through the twig, leaf and bud growth.

Only through our own endeavors, in the nursing, spraying and cultivation can we look for the answer of "What is the Prospect?" As you have done by the tree, so will nature repay you in its fruit.

When we speak of prospects it behooves us to remember that we are not a small community under similar conditions, so I must speak generally on my own locality; but the underlying facts are concrete in all districts where fruit is grown.

GENERAL PROBABILITIES OF TRADE.—There has been and there will probably continue an increasing shortage of the main requirements of food, and this must and can be supplemented by an increased production of fruit for the period of 1918-19.

Of all the fruits which can be put into economical space and are sure keepers of universal flavor, the plum is supreme. We may be assured that its reputation will expand; the public demand increases as butter and its substitutes grow scarce and advanced in price.

MARKETS LOCAL.—This is the ideal destination for all fruits and a careful canvass of your own locality will in many instances open up a mine of possibilities in disposing of your fruit. The extra and increasing cost of packages, the numerous charges of freight, commission and cartage are eliminated, and last and not least, the perfect condition in which the fruit is delivered to the consumer, are all factors pointing to the local market, as the ideal.

CENTRAL.—That which lies outside of your team radius the point to which you and many others will ship either on direct sale or consignment and ultimately resold. The medium of distribution as at present known to the most of the commercial growers is subject most to abuse, but is an indispensable method of distribution whose advantages and disadvantages lie often in the hands of the shipper, who too often beguiled by the siren voice of a circular letter, ships kindly he knows not where.

WESTERN.—The demand in the Western part of Canada for fresh fruit has in the past created a trade of large dimensions whose chief advantage to the growers has been the stabilizing of the Eastern prices, by the consumption of the surplus quantity of fruit, especially in those years when there might have been a temporary glut; by relieving the eastern market it has stabilized the otherwise fluctuating prices; the bane of both dealers and growers. At the present high rate of transportation and the longer period in transit makes this market appear far distant, and a risky proposition, for the fruit is generally ungraded, and in this state cannot compete with the wrapped and boxed Oregon and Washington produce. They have learned that the more distant the market, the better must be the quality to pay expenses and show a profit.

CANNING.—What the canners know they do not generally give away. But we may arrive at a safe conclusion that the market will be bare of plums in the near future and that an appreciable increase in the quantity of plums required for the trade will be in evidence this year.

SUMMING UP.—The prospect of the distribution and the ultimate cash returned to the producer was never better than as it stands to-day.

"What of to-morrow?" What we have now we cannot change, but we may and should be governed by the experiences of the past, and plan for the business of to-morrow. Firstly, by careful review of the different varieties we are going to plant. Their ultimate destination—the local, central and canning trade—what we are planting for, and what varieties will be in demand for these markets in years to come. Secondly, by a careful study of the soil conditions and availability

—for it is granted that we will go on planting and not be discouraged. In availability I mean that fruit requires the best of your soil and care, and the nearer to view the more likely to be worked, sprayed and inspected. Your best land is none too good. Plums will grow in stiff clay, but as the fruit is largely water an available supply of moisture is required to bring the crop to maturity. A sun-burned clay means a big drop in the fruit and sometimes a complete loss.

The plum well grown and sprayed is a long keeper if picked at the right stage, but once past that point deteriorates rapidly. It is a safe rule that they should be picked early.

In the process of jam making it is essential that the fruit is *not ripe*, as the chemical changes in its composition destroy the jelly power.

There are some points to be remembered for this year's crop. Let us try to produce an abundance of the best quality of fruit, that whereas in the past, we have been busy and otherwise occupied, and have allowed nature to take its toll on our neglect and carelessness, this year we have the added stimulant that our country and those beyond the seas are pleading that we do not waste; and in waste is meant, that we do not allow to go to waste by either *over-production*—meaning small and imperfect fruit—Curculio stings, and rot or over-ripeness. The remedies are in the first place:—

1st. Thin and thin again.

2nd. Spray and spray again.

3rd. Early picking.

May we be true to our trust, providing for those near at home and far away, with the satisfaction that we have done our duty to the best of our ability.

PEARS—OUTLOOK FOR 1918.

H. T. FOSTER, BURLINGTON, ONTARIO.

In speaking of the outlook for pears for the season 1918, I would not pretend to make the prediction that the crop would be an abundant one of good clean fruit, and that it would command a very high price.

Neither would I discourage you by saying that the trees will be damaged and the crop of pears will be light and of poor quality owing to the unnatural weather conditions of last summer and fall, and the steady cold weather of this winter, for I will venture to say that never since pears have been grown commercially have we had as much severe cold weather. But I would say to you fellow fruit growers of Ontario, and especially to the Commercial Pear Growers, to stay on the job.

Although you may feel discouraged by present conditions, of labor, packages, insect pests and general high cost of production, with perhaps a limited market and at times a prospect of prices not sufficient to cover production and leave a decent profit, I say take the best possible care of your orchards, fertilize and cultivate the ground properly, prune your trees as much as necessary, spray as thoroughly as you know how; pick and pack and sell your fruit as intelligently as you can, and I believe that the results will be satisfactory, for there is always a demand for real good fruit well packed. Although at the present time our export trade is closed, yet there is a fairly good local market and also the Western market, and I think it would be a mistake for a grower who has his pear trees grown or

bearing to neglect them at this time of the year, and expect to take them up again when things become more settled.

Unfortunately fruit trees and the fruit crop are such that they need attention all the time, and when a season of failure comes we have to bear with it, and when a season of success and profit comes we ought to be in a position to enjoy the benefits. Or, in other words, "We should have our dish right side up when the shower falls."

In summing up, the prospect for 1918 is reasonably good. If the trees have come through the winter all right—and I think they have as far as I have seen—the buds appear all right now—it is reasonable to expect as the 1917 crop was very light, that the 1918 crop will be a good average, and as sugar is likely to be a little more plentiful, the canners and consumers generally will use more pears, and at good prices.

The question of soils and varieties of pears to plant is not a part of this subject, but may come up in discussion if you wish.

CHERRIES—OUTLOOK FOR 1918.

W. A. MITCHELL, PORT ELGIN.

We are practically new in cherry growing in our part of Ontario, which is in Bruce County, on Lake Huron. We are only about six years old in that business, and we, therefore, have not very much to tell you on the subject.

The outlook for 1918 is not too bright for us. We have had considerable cold weather this winter, the coldest being down to 32° below zero, but one advantage has been that we have not had any extreme changes. We have not had any soft weather from Christmas until last Monday, and that is one thing I think will be in our favor for the 1918 crop.

Our points of shipment are along the railroad lines from Port Elgin to Palmerston and Stratford, and at odd times we send as far as Guelph. Our market is not very large, and our plantations are just in sight of good annual bearing. We hope in a few years to have large shipments made from Port Elgin. Some of our neighbors have larger plantations than we have, but our shipping facilities are not the best.

One thing that is bothering us in the district at the present time is the Shot Hole Fungus, and if we do not get some remedy we will be down and out. Last year the leaves practically went off all our trees except those on the outside row. I would like to have some information on how we can control that Shot Hole Fungus. We have a little of the Black Knot, but we keep it under control in our orchards.

A MEMBER: Spray early with Bordeaux mixture. Wash down first with two pounds of bluestone to forty gallons of water. Do that before the disease breaks out, and then if you find any of it put on the Bordeaux mixture.

SMALL FRUITS—OUTLOOK FOR 1918.

LEONARD HARRISON, WATERFORD.

I have been asked to say a few words to you this afternoon on the outlook for small fruits during 1918. We are living in the most unusual times ever experienced. We are up against conditions never before dreamed of, and I have yet to

find the farmer who is not willing to do his utmost to produce during 1918, though it necessitates greater efforts than he has before been asked to put forth.

There is one danger which I can foresee in the willingness of growers, and that is that they may be tempted to over-step the bounds of physical endurance and put in more than they can properly look after. This must not be. Strawberries, as you know, entail a vast amount of labor, and no crop gives the grower better remuneration and will pay the grower more handsomely for all the work he puts in; and, on the other hand, no crop will give greater disappointments than a patch which has not received the care and generous treatment which it deserves. Make up your mind to plant what you can look after. You will produce more for the country with a small acreage well cared for than you will with double the acreage only half done.

Alluding to the prospects for 1918, we may admit that we have some cause to be somewhat optimistic. The berry patches in most districts were planted last spring under ideal conditions. We were able to set our strawberries out early and they became well established before the drought set in.

From the Waterford District we ship about one million boxes of strawberries and about one-half that amount of raspberries, and our patches are looking well though we have a reduced acreage, and perhaps rather thinner rows.

The prices this year are bound to run high. Every berry we grow will be wanted, and it is up to us to put our fruit on the market in better shape than we have ever done before. My reasons for looking for high prices are that the demand will be great for both raspberries and strawberries for canning and preserving purposes, and while the importation from the States is likely to be heavy, yet the supply is not likely to exceed the demand owing to the enormous export demand for jams and canned fruits. Canada and the States are practically the only countries able to fill this demand. With the few ships available for transportation and our nearness to the Mother Country means that the bulk of the goods must come from this continent. Australia, no doubt, will ship a certain amount, but her distance and the extra risk to be run puts her out of commission as an active competitor.

Domestic consumers of berries will also show an increase—the urgent need of conserving every ounce of food will make the matter of home canning of special importance. We must also look for a probable increased consumption of all fruits during their respective seasons, owing to the need of conserving as much bread, meat and other food stuffs as possible.

I anticipate a further reduction in the acreage of raspberries. For the last few years we have found this crop to be anything but a really paying one. The factories have not been able to give us a remunerative price, which has caused many growers to do away with their patches; also the increased difficulty in getting them picked and the higher prices which the grower has had to pay to get them picked has discouraged many from planting. I cannot see that the future should warrant any man to desist from planting, as we are not likely to see the low prices prevail again for some time. It is true that the States have been able to give our preservers a cheap raspberry pulp, and it has yet to be proved to me that this has been a paying business for our neighbor, and who now with paid labor getting less plentiful is not likely to continue in a business when other products are likely to prove more profitable unless she receives a substantial increased return. Perhaps more might be done by co-operation between our associations this side and those across the border to our mutual advantage.

Some of us are apt to groan over the labor for 1918. As far as the picking is concerned, we shall get the fruit picked and must be prepared to pay more, but to get the help is the most important. There is the Women's National Service Organization, which last year we tried at Waterford. Many farmers held back from taking advantage of this help. They felt certain that those ladies would never stand a hot day and would give in too readily. Let me tell you right here that those ladies rendered us most valuable services. They were a credit to their organization, and a credit to themselves, and that, in spite of the hottest summer we can remember. Don't despise the help that those ladies are again offering the grower this year. Make all the use you possibly can of them, and encourage the movement which is patriotic and national. It may interest some of you to know that our village merchants are considering closing their stores three days a week while the berry crop is on and turning out to help pick. This will release quite a few hands to help. If this spirit prevails throughout the fruit sections, much will be done to relieve a possible shortage of picking help.

It may be possible that some one in the audience may be able to give me the benefit of their experience in a matter that we had difficulty over this summer. We made a contract for a certain number of berries to go to a jam factory, and this year, owing to the bad weather, we were not able to fill our contract. Every firm with the exception of one, paid for the berries they received, but one firm in Hamilton up to the present time has refused to pay the balance of the account, claiming a counter claim for shortage of delivery. We never bought any berries from anybody else, and we never supplied anybody with berries except those we had contracts with.

THE CHAIRMAN: I see no reason why they should not pay. Weather conditions were responsible for your not being able to supply them, and I do not believe any court in the world would hold you responsible.

MR. HODGETTS: In case we secure a heavy crop of apples, and if any fruit growers in the Province wish the help of young girls for packing the apples, our Branch will be glad to train girls in any centres for this work. We have done that for our own use for shipping apples overseas, and we have had splendid success with this help.

MR. ONSLOW: I would like to move a vote of thanks to the Minister of Agriculture for the general oversight he has given our work in this country, and to Mr. Hodgetts and the members of his Department who have helped us so splendidly during the past season.

The motion was seconded by MR. TERRY, and carried with applause.

REPORT OF RESOLUTIONS COMMITTEE.

The report was presented by Dr. A. J. Grant, Chairman.

Your Resolutions Committee beg to submit the following:

1. Whereas, the Fruit Growers' Association assembled in convention at Toronto, February 14th and 15th, 1918, realize that our country is in the midst of the greatest war of history and that every effort and every necessary sacrifice must be made to bring about a successful end of the conflict: Therefore be it resolved that we as representatives of the fruit growing interests of the Province of Ontario do lend our most earnest support to our chief executive and his able assistants, and be prepared to do our utmost to stimulate production and conservation of food and in any other way lend our aid to the furtherance of the cause.

Be it further resolved, that the Secretary of the Association be authorized and hereby instructed to send copies of these resolutions.

2. Resolved, that the thanks of this Association be tendered to the Minister of Agriculture at Ottawa for prompt action in the appointment of a traffic expert in connection with the Department of the Dominion Fruit Commissioner.

3. That the Federal Government be requested to inquire into the possibility of assisting in the conservation of the fruit production by either assisting or organizing the evaporating industry in the various fruit producing centres, or in the further development of the jam and canning industries of Canada.

4. Resolved, that the thanks of this Association be tendered to the young women of this Province who so ably have assisted in the harvesting of our fruit crops.

5. Resolved, that the thanks of this Association be tendered to Mr. Geo. E. McIntosh for his very efficient services during his tenure of office as Traffic Expert.

6. Whereas it is of the utmost importance to do everything to increase production, we urgently ask the Government to remove the duty from all spraying machinery used for the spraying of orchards, as the quantity and quality of the fruit products depends entirely on the care that is given them. With the scarcity of labor we must have efficient machinery to work with. The present duty added to the increased price of labor and material makes the present cost of spraying machinery a hardship for the average grower.

7. Moved by MR. RITTENHOUSE, seconded by MR. BUNTING, That we, the Fruit Growers, assembled in convention, desire to express our appreciation and approval of the efforts of the Department of Education in allowing high school boys and girls to go out and work on the farms throughout the Province during the closing session of the spring school term, and thereby very materially aid the farmers in their efforts to maintain and also increase food production, and in view of the fact that the month of September being a rush month, especially on the fruit farms, we respectfully ask that the Department of Education see their way clear to excuse these boys and girls from returning for the coming fall term before October 1st, at least, besides allowing them to leave school in April as in the past year.

MR. RITTENHOUSE: I may say that as a fruit grower we very much appreciate this move on the part of the Board of Education. They have in the past allowed these boys to go out in the early spring months, which was not of as much importance in my neighborhood as the fall months would be. We have no objection to them allowing the boys and girls to finish their spring term if they will excuse them a little later in the fall. That is the idea I want to cover.

A MEMBER: I think the idea of the movement was to assist in getting into the ground a good big crop, and then the men could take care of that crop themselves in the fall.

THE CHAIRMAN: I think it would be a good idea to let the boys and girls come early and stay late.

MR. RITTENHOUSE: I had a boy who was a very good worker, and I kept that boy all during the month of August because I wanted him in September, but he had to return to school on the 1st of September. I telephoned the Department and they could not give me any information. I did not need him very much in August.

REPORT
OF THE
Horticultural Experiment
Station

VINELAND STATION
ONTARIO
1916 and 1917

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO:
Printed by A. T. WILGRESS, Printer to the King's Most Excellent Majesty
1918

Printed by
WILLIAM BRIGGS,
Corner Queen & John St
Toronto.

To His Honour SIR JOHN STRATHEARN HENDRIE, C.V.O., a Lieutenant-Colonel
in the Militia of Canada, etc., etc., etc.,

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

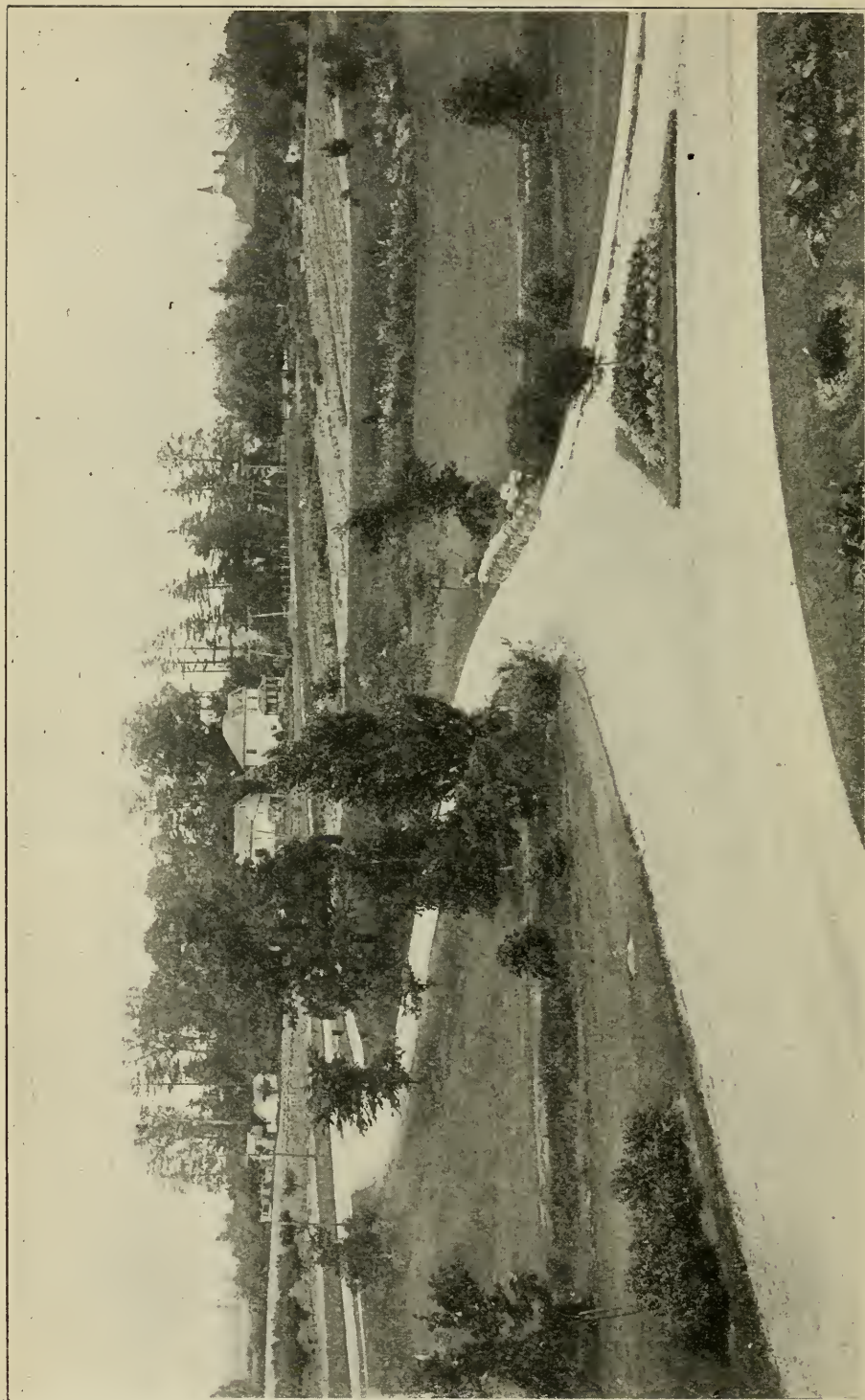
The undersigned begs to present for the consideration of Your Honour the
Report of the Horticultural Experiment Station at Vineland Station for 1916
and 1917.

Respectfully submitted,

W. H. HEARST,

Minister of Agriculture.

TORONTO, 1918.



View from Administration Building of the driveway into the Experiment Station.

REPORT

OF THE

Horticultural Experiment Station

1916 and 1917.

In the early days of the Station the office and administrative work was necessarily much less than at present, and the Director in charge at that time was therefore able to personally oversee and direct the ordinary cultural operations of the Station. During succeeding years, however, the Director's time and energy were more and more required for office routine and the carrying out and recording of the experimental and investigational work under way. The various branches of this work have in turn grown and new work been added until now the Director's time is very largely taken up with the general administration of the Station. The plant breeding and the experimental work, etc., were divided and a trained assistant placed in charge of each branch. The plant breeding has in turn grown to such an extent that a further division of this department has been found necessary. There are then at the present time the following divisions of the Station work: Plant Breeding, Tender fruits; Plant Breeding, Hardy fruits; Pomology; Olericulture; and By-products.

RESIGNATION AND APPOINTMENT.

F. M. Clement, appointed Director of the Experiment Station in the spring of 1914, resigned in August, 1916, to accept the position of Professor of Horticulture in the University of British Columbia. E. F. Palmer, formerly Assistant Director of the Fruit Branch, Ontario Department of Agriculture, was appointed in September, 1916, to succeed Mr. Clement.

PUBLICATIONS.

Two bulletins prepared by members of the Experiment Station Staff were published by the Ontario Department of Agriculture during 1916: "The Grape in Ontario," by F. M. Clement, Director, and "Peach Growing in Ontario," by F. M. Clement and A. G. Harris, Assistant in Pomology. In 1917, two more bulletins were published: "The Pear in Ontario," by F. M. Clement and O. J. Robb, Assistant; and "Pruning," by F. M. Clement and F. S. Reeves, Hybridist.

Shorter articles on various phases of the work under way have been written from time to time by members of the staff for various horticultural and agricultural papers. Material dealing with the experimental and plant breeding work being carried on at the Station is prepared each month for publication in the Ontario Fruit Branch Circular.

EXHIBITS.

Very successful exhibits were made during 1916 both at the local Beamsville Fair and at the Canadian National Exhibition, Toronto. These exhibits are so planned as to bring to the attention of the public and more particularly those

interested in fruit and vegetable growing, the work that is being carried on at the Station. A particular feature of the exhibit at the Canadian National was the display of peach jam, put up by the By-products Department of the Experiment Station. To those particularly interested sample jars of the jam were given together with printed instructions enabling them to make the jam themselves. Only a very small exhibit was made at the Canadian National in 1917.

NEEDS OF THE STATION.

The lack of sufficient accommodation for farm help is being felt more acutely each year, especially in view of the fact that unmarried help is not available under present war conditions. Cottages have had to be rented for four of the laborers employed, and this besides costing an annual rental, is a serious inconvenience to the men who are sometimes required to work outside of the regular hours. It is difficult to secure and even more difficult to retain the desired class of labor when proper accommodation is lacking. The need for new cottages is therefore great, but will be relieved to some extent on the completion of a double cottage now under construction.

In addition to the need for new cottages, the Annual Report for 1915 made extended reference to other equipment in the way of buildings, etc., that was sorely needed. These buildings included increased greenhouse space, and a more commodious boarding house for single members of the staff, student assistants, stenographers and visitors. The greenhouses are now under construction and it is hoped that the boarding house will be built during 1918.

Sufficient land suitable for fruit growing has long been one of the great drawbacks to the successful carrying on of the various lines of work. This need has been permanently met by the rental of fifty acres of excellent land situated within working distance of the Station. A seven-acre property fronting on the Town Line and lying immediately in front of this fifty acres has been purchased outright.

CHARACTER OF THE SEASONS OF 1916 AND 1917.

The character of the weather for 1916 may be said to have been quite remarkable for its extremes, but that of 1917 was even more so and considering our heavy type of soil was quite the most disastrous we could have experienced for our kind of work.

The winter of 1915-16 was comparatively mild during the first part up until Feb. 1st. The second frost of the season occurred on Nov. 11th, and there was no more than a few degrees of frost until the last day of December when the thermometer dropped to 12 deg. F. Zero was reached on the 17th of Jan., and then during the last ten days of the month the weather became very mild with heavy rains on the last two days taking away all the ice. February and March were typical winter months, the latter being especially stormy. The minimum temperature for the winter of 2 deg. below zero was reached on the 18th. There was a total snowfall of 22 in. in February, but March received the minimum monthly precipitation of .53 in. for the year. The snow stayed late and was not all gone by the first of April.

The winter of 1916-17 was longer and more severe. During November beginning on the 12th, there was two weeks of winter weather which then moderated for about two weeks and winter came again in earnest early in December with a temperature of only 4 deg. above zero on the 16th. There was a January

thaw which took away all the snow, but more came soon and we then had steady winter weather until the 7th of March. The minimum temperature for the winter was 7 deg. F., below zero on the 13th of February. The most of March was comparatively fine but with cold north winds. The month closed with a thunderstorm on the 23rd and fine, warm weather until the end of the month.

The chief features of the spring, summer and fall of 1916 were the extreme cold, wet, late spring followed by the extreme dry summer. During 1916, April, May and June were excessively wet and somewhat backward. The precipitation for those three months was 3.42 in., 4.93 in., and 4.57 in., respectively, or 12.92 in. for the spring months. The last frost recorded was a temperature of just 32 deg. F. on April 19th. The earliest blossoms to appear were on the 9th of May and it was not until the third week of May that the tree fruits came into bloom and then owing to the lateness of the season they all came at about the same time.



Experiment Station, driveway and Administration Building, 1916.

During 1917, April was cold but not so wet as the previous April, the temperature going down to 25 deg. F. on the 10th. The cold weather continued throughout May and commencing on the 16th an excessively wet period ensued until July 22nd. The wet of this season was even more disastrous than the previous season especially to the plant breeder. The precipitation for April, May, June and July, 1917, was 2.77 in., 3.38 in., 6.29 in., and 4.18 in., respectively, or 12.44 in., for the three spring months, followed by an excessively wet period of four inches more the first half of July. All fruits were very late in coming into bloom, it being June 1st before the peach bloom opened whereas they open about May 1st during a normal season. This retarded growth so much that there was danger of many fruits being caught with frost in the fall before they were mature which was actually what did happen. The first part of July was excessively wet—so wet in fact that there was more water on the land at that time than is usual even in the spring thaw. Then immediately when the rain ceased, we were subject to excessive heat which was doubly oppressive coming at

a time when the ground and atmosphere was saturated with moisture. The temperature went up to 96 deg. F. There was a normal rainfall for August, September and the first half of October, but during the latter half over 5 in. fell within ten days. This amount at this time did not cause any very serious difficulties as the land was able to absorb the most of it. It was much in contrast to the dry fall of 1916. It was immediately followed by cold weather with the winter of 1917-18 setting in with good sleighing early in December. The total precipitation for the year was not above the average, and in 1916 it was even below the average, but in both years it was very unevenly distributed.

Taken altogether the season of 1917 was full of extremes and unheard of excesses, and quite the most unsatisfactory year meteorologically, on record.

PLANT BREEDING.

Plant breeding at the present time is and probably always will be the most important of the various lines of work being carried on at this Station. The amount of work with each fruit is growing steadily and the scope of the work is being gradually increased to include all our present commercial kinds of fruit;



Spy apple tree being used for hybridizing work. The paper bags which can be easily seen are used to cover the emasculated flowers to protect them against the introduction by winds or insects of pollen other than that applied by hand.

others which on account of lack of hardiness or some other limiting factor are not yet of commercial importance, but which will, it is hoped, ultimately prove of great value through plant breeding; and the many problems in hybridizing, germination of seeds, etc., which confront the plant breeder. Progress can be

only made on sound and fundamental foundations. As our experience increases, we learn through mistakes we have made, of indispensable requirements for the successful continuance of the work, and each year sees some definite results attained which serve as a guidance for the further carrying on and enlargement of the work. In the past certain phases of the breeding have been carried on under extreme difficulties and the experience so gained would indicate that such work would better be discontinued until equipment is available with which to overcome these difficulties.

In analyzing the past five seasons' work in hybridizing the stone fruits out-of-doors, the conclusion has been reached that out-of-door methods for these fruits so militate against successful results that continuation of this method would be very discouraging and in no way commensurate with the efforts put forth. Hybrids and seedlings must be grown in large numbers to expect any reasonable progress in the improvement of varieties through plant breeding.

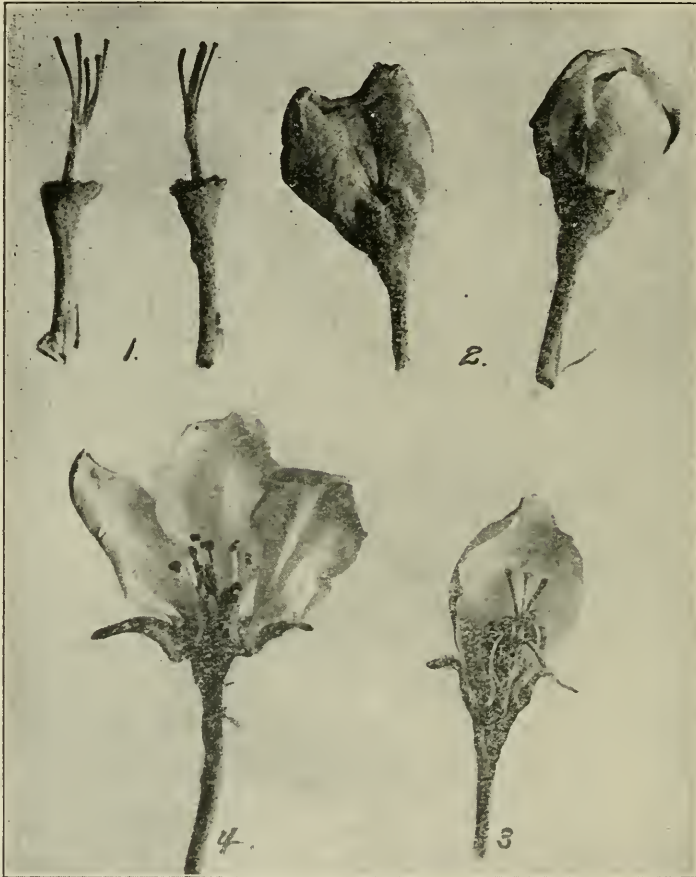
Scientific investigation in plant breeding must go hand in hand with the work for practical results. Oftentimes, a little investigation clears the way for far better and quicker results. Investigational work in seed germination needs greatly to be done to determine the best methods of handling and germinating the many different kinds of fruit seeds after they have been secured through painstaking hybridizing work. Again, the knowledge that self-sterility in grapes is due to the degeneration of the sex cells in the pollen grain (*M. J. Dorsey*) has eliminated the necessity of emasculating the self-sterile varieties when using them as female parents (thus avoiding a great amount of laborious work) and makes evident the futility of using the pollen from these self-sterile varieties on other varieties or on their own flowers. Incidental work at this Station with Greensboro and Dewey peaches, two of the best early commercial varieties, has shown that their seeds are not viable and hence precludes their use as female parents or in the securing of self-fertilized seeds.

These incidents are given to show the necessity for broadening the scope of the plant breeding work so that scientific investigation may work hand in hand with practical work. All the work heretofore has been of a practical nature only, owing to lack of facilities and equipment, insufficient trained assistance, and funds to extend the work to what it should include. If sufficient money were available investigational work would be given the time and prominence that it deserves, to the, needless to say, great advantage of the work in hand and hence to the fruit interests of the Province and Horticulture generally.

As mentioned at the beginning of the Plant Breeding Report one of the chief activities of the Experiment Station is the production of new and better varieties and improved types of old varieties of fruits either by hybridizing or through selections of present varieties. Another way which it has been practically impossible to attempt yet but undoubtedly one of the ways in which future improvement will take place is through the selection of desirable bud variations, though it would be unreasonable to expect to achieve by this method the almost spectacular results which have attended the bud selection work of Shamel with citrous fruits in California. Our fruits apparently are not as variable as are the citrous fruits and therefore do not lend themselves so readily to improvement through bud selection. Nevertheless, to use specific examples, it has often been observed that there are at least two distinct types of the Northern Spy apple, one of which from its more attractive conical shape, distinctly higher color, and better keeping quality is much more desirable commercially than the other. To mention another instance, a Bartlett pear tree was observed in the fall of 1916

which bore normal fruit on all of its branches but one, and on this branch the fruit was russeted over completely presenting in color very much the appearance of the Bosc pear. The fruit was normal in every other way, size, shape, flavor and season, in fact, a Bartlett in every regard except as to color.

Similar variations to those mentioned above no doubt exist in a more or less marked degree in all our cultivated fruits. It only remains for a man sufficiently trained with regard to varieties and with regard to the probable



No. 1 illustrates apple blossoms emasculated (male reproductive organs removed). No. 2 shows blossoms in right stage for emasculation—before the blossoms open. No. 3, bud cut open showing right stage for emasculation. No. 4, blossoms open—too late for emasculation. Note how the mature stamens surround the pistil.

commercial value of such variety variations, to make it his work to discover such variations, using the whole of Ontario, and more particularly the Niagara District as his hunting ground. Quicker results may possibly be looked for from this method and the finding also of good chance seedlings (one or two such we have already accidentally found and are propagating for further trial) than by having to wait for definite hybrids, especially of tree fruits, to come into bearing. The limiting factor in such work as outlined briefly in the foregoing paragraphs, is of course the lack of necessary funds.

THE WORK IN APPLE BREEDING.

From the breeding work here and research work at Macdonald College we have the following growing in Section 1 ready to set out in the spring of 1918:—

TABLE 1.—APPLE HYBRIDS.

Cross.	Number Seeds planted, 1915.	Number Seeds germinated.	Number alive September, 1917.
Spy x Ben Davis	24	15	12
Spy x Wealthy	53	12	10
Spy x McIntosh	26	8	8
Spy x Duchess	21	7	6
Spy x Fameuse	13	2	2
Fameuse x McIntosh		78	58
McIntosh x Wealthy		27	21
McIntosh x Milwaukee		13	9
McIntosh x Fameuse		4	4

Received from
Macdonald Col-
lege. The re-
sults of research
work.

During the period in which the 1917 breeding work on apples was done the weather was more or less disagreeable.

By June 1st the buds were showing pink and in many places were opening. Emasculating was started and was done on June 1st, 2nd, and 4th. The young trees in Section 7 which were the farthest advanced were ready to pollinate June 4th and with these a 4.9 per cent. set was obtained. This was very poor as on only one out of five trees did we get a fair set, 15.3 per cent. Two others gave one fruit each out of 111 and 122 pollinations while the remaining two gave nothing out of 137 and 22 pollinations respectively.

The pollen used was fresh having just been gathered long enough to burst before being used. Immediately after this the weather became cold and wet and the vitality of the pollen may have been injured. This subject of cold injuring the vitality of the pollen is one on which there has been considerable written during the last year in several fruit papers, showing, over a long period of years, how cold wet weather at blossoming time had frequently spoiled the fruit crop.

The cold wet spell stopped June 9th and pollinating was immediately done in Section 3. The buds had been emasculated since the 2nd and 4th but still looked receptive. The cold had so retarded the bloom that it had scarcely opened any since the 4th. Three fruits set out of 953 pollinations but these dropped shortly after.

CHERRIES.

Seedlings: The seedlings grown in 1915 were transferred in the spring of 1916 from the nursery row to a permanent plantation, but unfortunately most of them died. Many died in storage during the winter and many more never survived transplanting. At present, only 7 Elkhorn, 7 Late Duke, 5 Coe's Transparent, 6 Cherry No. 5 and 1 Windsor seedlings are growing out of 1,252 seeds which originally germinated and which represented eleven varieties.

A large number of seeds were secured during 1915 and were planted in beds

out-of-doors in Section 1. The germination again was exceedingly poor as shown in the following table:—

TABLE II.—GERMINATION OF CHERRY SEEDS SECURED IN 1915.

Variety.	Planted.	Germinated.	Growing, Fall, 1917.
Windsor.....	6,400	1	.....
Montmorency	6,000	138	45
Late Duke.....	2,800	16	15
English Morello	2,500	36	21
Black Tartarian	600	.....	.....

This work was repeated in 1916 and 1917 but the seeds were given cold frame treatment in the spring rather than being planted outside in beds. To date no count of the germination has been made but in most cases it has been quite good. The following list gives the number of seeds planted:—

	1916		1917
Black Tartarian.....	2,059	May Duke	1,160
Napoleon	3,120	Lewelling	1,434
Windsor.....	3,503	Napoleon	1,179
Reine Hortense	415	Windsor.....	1,696
Late Duke.....	620	Black Tartarian	423

A number of buds of the Abundance and Burbank cherries were received from Mr. Geo. A. Robertson, St. Catharines. These have been inserted in tree 2, row 7, Section 6.

Hybrids: The past year 1917, the breeding of cherries was carried on for the first time and we secured, all things considered, very fair results. We have yet to see how the seed will germinate.

Following is a list of the crosses made and the results obtained:—

TABLE III.—1917 CHERRY HYBRIDIZING.

Cross.	Number Pollinations.	Number Fruit Set.	Number Gathered.	Number Saved.
	sacks	sacks	sacks	sacks
Black Tartarian x Napoleon	41	54	47	18
Napoleon x Black Tartarian	32	97	62	25
Olivet x Windsor	23	20	18	13
Windsor x Black Tartarian	13	24	24	19
Windsor x Rockport	13	32	29	16
Montmorency x Napoleon.....	58	163	121	106

The number of fruit set is small due to the weather being very cold and backward at that time. A period of about a week elapsed between emasculating and pollinating so that many of the pistils dried up. Ten blossoms were usually included under each sack.

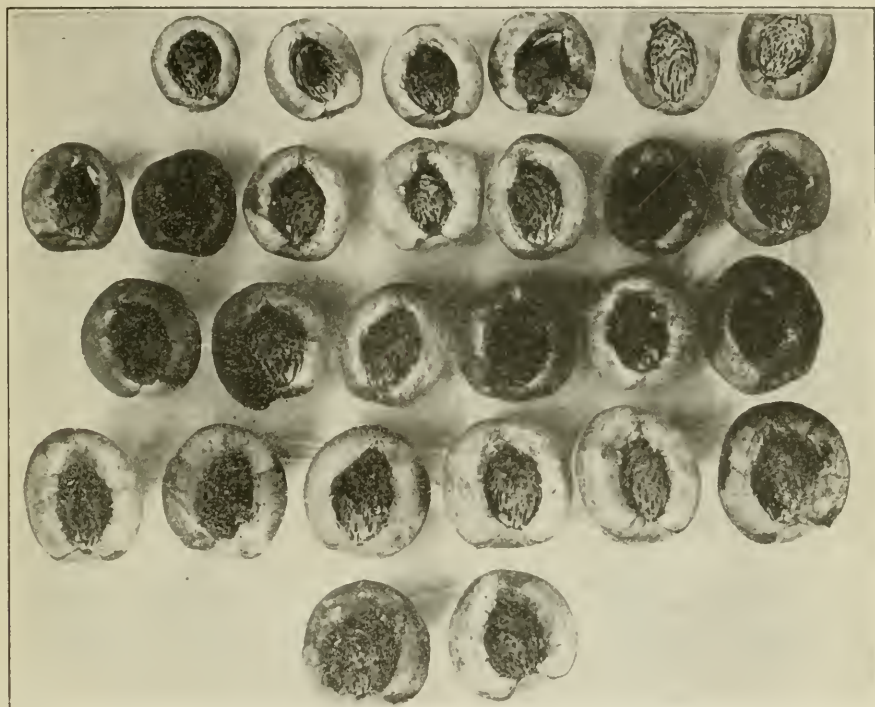
In column "Number Saved" we have a record of the pits which sank in water and which were therefore saved and planted. In washing cherry pits it has been found that those which float contain only a dried up kernel and are therefore worthless.

PEACHES.

Seedlings: All of the seedling peaches which were planted in 1911 fruited during 1916 and 1917 and have been described. Those thought worthy of further

trial have been retained, the remainder removed. Those of this lot that were formerly thought to be New Prolific seedlings are undoubtedly Elberta seedlings, as shown by their similarity with each other and with the Elberta type of peach.

Elberta seedlings are all, with one exception, of the Elberta type—somewhat oval—and not very highly colored. The pits also are all of the Elberta type—corrugations being somewhat smoother than in other peaches and the pits being long and somewhat flattened. Those in the illustration where the pits are not distinct, are cling-stone. Each half peach represents one seedling. The two half peaches at the bottom of the illustration (Fig. 6) are the Elberta variety itself.



Elberta seedlings. Each half section represents a different seedling. The two half peaches at the bottom are the Elberta variety itself. One seedling in particular is very promising.

The Elberta seedlings show very encouraging results from the few that have fruited. Out of a total of 28 trees, 16 fruited in sufficient quantity for the fruit to be described and of these eight or 50 per cent. were of better quality than the Elberta itself. Twenty-five trees bore fruit and of these, 25 per cent. were equal to the Elberta in size, but were not so good in color.

One of the Elberta seedlings in particular is worthy of further trial. The fruit resembles the Elberta variety itself in many ways as regards size, shape, color, flesh, etc., but is of a distinctly higher quality and possibly two or three days earlier in season.

In the accompanying illustration the large fruit at the top is St. John and those in the row immediately below it are seedlings of St. John. The St. John type is evident in the pit, but the fruit is all smaller and very much later in season. The other row represents seedlings of an unknown origin, but they,

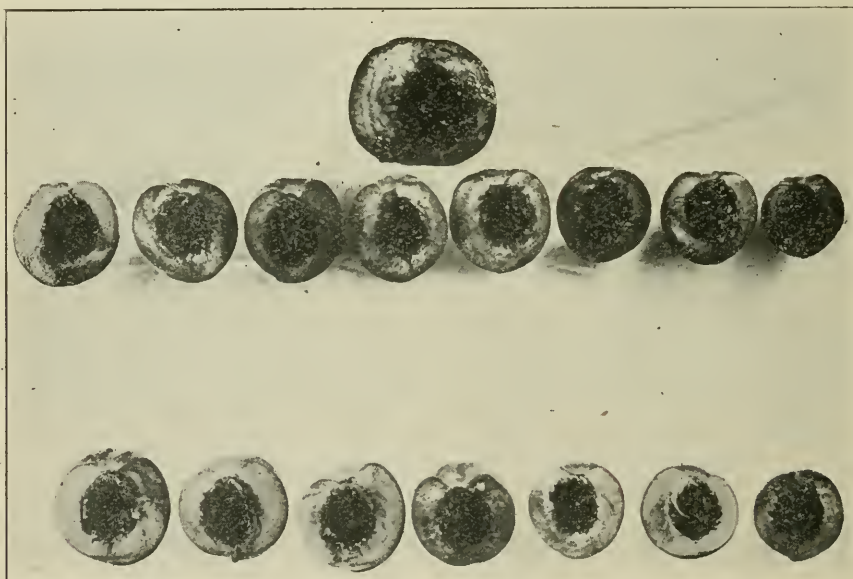
in all probability, are St. John seedlings, too. They are small and late and of no commercial value. Each half peach represents a seedling.

The St. John seedlings are all uniformly freestones. The fruit is all small and very much later than the St. John, being ripe in the same season as the Elberta (September 28th, 1916).

Of the block of 1,000 Early Crawford seedlings which were planted in 1913, 343 fruited during 1917. Fourteen of these ripened their fruit before September 25th, of which number only three were considered worthy of further trial.

Ten of these which ripened before September 25th had white flesh, the other four had yellow flesh, as did nearly all those which ripened later.

No others were ready until October 10th and these had all been touched by the frost of October 7th and 9th causing them to be very mealy and tasteless so



The large fruit at the top is St. John, and those immediately below are St. John seedlings. The parentage of the bottom row is unknown, but is probably St. John also.

that very little idea of flavor could be gathered. Twenty-nine were removed at this time as being too small and of poor quality. There were also 67 which at the above date had not begun to ripen and which were therefore removed as being far too late in season to be of commercial value.

This block of peaches was planted 7 ft. by 7 ft. which distance has been found to be insufficient. Every third row running north and south was therefore removed in the fall of 1917 so that the remainder might have a fair chance to fruit. There are now 512 trees left.

In one block of peach seedlings, mostly Elbertas, planted in 1914, only eight or nine bore fruit and only in small quantity. In another block of Elberta seedlings of 107 trees, 83 bloomed in spring of 1917 and in these seedlings there was a very noticeable breaking up in the type of blossom—Elberta is supposedly the result of a Chinese Cling and Early Crawford cross. The Chinese Cling type is an example of the large flowered peaches while the Crawford is an

example of the small flowered peaches. The Elberta has a medium sized flower. In the above seedlings then we have the F_2 generation of the Chinese Cling x Early Crawford. The breaking up in blossom type was as follows:—

Those with small pink flowers	57
Those with large white flowers	26
Those yet to bloom	24
	107

From the numbers which have already blossomed we do not get any definite ratio but if the most of the remaining 24 were to show pink we would then have a very good 1-2-1 ratio. The further blossoming of these Elberta seedlings is being looked forward to with considerable interest.

Of the 5,298 seedlings of the following varieties planted in 1915 approximately 4,500 are still alive and in nursery rows to be planted out in the spring of 1918:—

Elberta	935	Lemon Free	1,402
Longhurst	1,004	St. John	160
New Prolific	865	Jacques Rareripec	150

This block of seedlings presents a very uniform lot and has done well. The constant rain in the spring caused a few to succumb to wet feet and retarded many others. Later the Brown Rot fungus, *Sclerotinia cinerea*, attacked a good many which were at once pulled up and removed but even with these handicaps a very promising block remains.

During 1917 the following open fertilized seed was saved and planted:—

	Number		Number
Arp Beauty	543	Reeves Favourite	359
Leamington	323	Leamington selfed, Sec. 9, Row 3, T. 1	110
St. John	226	“ “ “ “ “ “ “ “	17 71
Elberta, Lot 1	149	“ “ “ “ Row 4, T. 21	17
Elberta, Lot 2	75	“ “ “ “ Row 4, T. 11	42
Longhurst	410		

Elberta Lot 1 differs from Lot 2 in that Lot 1 was picked as for commercial shipping. Lot 2 ripened on the tree, the object being to try and ascertain if the picking of fruit green has any effect on the germination of the pits.

The four lots of Leamingtons selfed are the seeds from the most promising of these hybrids in Section 9.

With these were also layered a large number of Dewey and Greensboro pits, and their behaviour repeats the experience of several seasons' attempted work with these two varieties. The Greensboro seeds were all shrivelled and decayed when examined in the spring; the Dewey, while they were in a little better state of preservation, failed absolutely to grow on being planted.

Peach Hybrids: A good proportion of the peach hybrids of 1913 breeding fruited this year and all which were not promising in some respects were at once removed. Cling-stone, poor quality, a marked deficiency in color or size, susceptibility to rot or other diseases, and extreme lateness were the general causes for which most were removed. Anything promising either commercially or for further breeding work was left for further trial. Table IV shows the 1913 hybrids which have fruited and those which have been removed.

TABLE IV.—SUMMARY OF FRUITING OF 1913 PEACH HYBRIDS.

Cross.	Number of Trees.	Number Fruited.	Number Removed.	Remarks.
Early Crawford x Greensboro	15	8	2	1 bitter, 1 very poor.
Elberta x Early Crawford...	7	6	.....	
Millionaire selfed.....	3	.....	.....	
St. John x Sneed.....	3	1	1	Very poor.
New Prolific selfed.....	16	9	9	Very late.
Leamington selfed.....	57	52	39	Small, fuzzy, poor quality.
Fitzgerald selfed.....	21	3	.....	
Late Crawford selfed.....	4	.....	.....	
Early Crawford selfed.....	4	.....	.....	
Elberta selfed.....	9	.....	.....	
Crosby selfed.....	4	.....	.....	
Golden Drop selfed.....	3	.....	.....	
St. John selfed.....	6	.....	.....	
Klondyke selfed.....	11	1	1	Late, small, poor.
Total.....	163	80	52	



Triple bud formation, Greensboro.



Single bud formation, St. John.

To date, Leamington selfed is the only one of which the majority of trees have fruited, and this gave us several interesting seedlings.

For the most part the fruit was white-fleshed and almost identical with the parent, differing only in season, some coming much earlier, Aug. 28th, to much later, Oct. 10th. The Leamington itself ripened Sept. 15th this year, 1917.

Upon making inquiries *re* the history and origin of the Leamington peach,

Mr. J. W. Noble, District Representative of Essex County, was able to furnish us with the following information:—

“The Leamington peach originated on the farm of George Mills, Leamington, Ontario, about twenty years ago. Mr. Mills is now deceased. It is a seedling of the Tyhurst seedling, white-fleshed, freestone, good quality and ripens a short time after Yellow St. John. It is not grown to any extent here on account of its white flesh.”

The Tyhurst seedling is yellow-fleshed which accounts for the seven yellow-fleshed peaches showing up in the Leamington selfed.

Of the New Prolific selfed which fruited all were extremely late in season and were therefore removed.

In the Elberta x Greensboro cross eight trees fruited, all of which bore large freestone white-flesh fruit, six of which were left:

Crossing work was carried on with peaches again during 1916 and 1917. The oiled cotton tent to cover the whole tree was given further trial in the 1916 season's work. In 1915, it was found that very high temperatures were maintained under the tent when the sun was shining directly on it, and in view of the poor results obtained, it was conceded that these temperatures were too high for the setting bloom. The following two tables of observations made on the tent used in 1916 indicate the same thing.

TABLE V.—ELBERTA PEACH TREE UNDER OIL COTTON TENT, 1916. EMASCULATED MAY 13TH, POLLINATED MAY 19TH AND 20TH, WITH YELLOW SWAN VARIETY. OBSERVATIONS, 717 POLLINATIONS.

Date.	Time	Temp. near Roof.	Temp. near Ground.	Temp. Outside.	Atmospheric Conditions.
May 13...	Noon	100 F	90 F	70 F	Bright, calm and clear. Air in tent smells very much of oil and is stifling.
May 17...	10 a.m.	56	55	52	Cloudy and cool.
May 19...	3 p.m.	65	65	60	Warmer but stormy. Thunderstorm.
May 20...	10 a.m.	80	66	52	Fine and bright, becoming warmer.
May 24...	10 a.m.	90	80	75	Fine and warm, becoming hot. In afternoon tent much hotter.

TABLE VI.—SUMMARY OF 1916 WORK AND COMPARISON OF TENTS AND SACKS.

Cross.	No. Poll.	No. Fruits set.	No. Fruits gathered.	Remarks.
Elberta x Yellow Swan	717	?	102	Oiled cotton tent used.
Early Crawford x Dewey	337	96	78	Sacks used.
St. John x Dewey	284	94	55	Sacks used.

In the plant breeding work for 1917 the conditions were rendered very unfavorable by continued cold and wet weather. Emasculating was done, but rain combined with heavy wind in many cases either broke off the bags or injured the pistils to such an extent as to render them useless. This being the case, on the appearance of a fine day (May 30th) before the trees were in full bloom, buds were selected which from all appearances would be fully open next day. These buds were then emasculated and pollinated at once.

The anthers in these buds did not show any signs of having burst and while no special work was done to see if this was the case we considered it safe enough to carry on such work.

A very important point to be considered in future work in the peach breeding is this: In peaches there are two types of buds, (1) The triple bud formation—two blossoms and a leaf bud. This gives an abundance of bloom and an even distribution of foliage, e.g., the Greensboro. (2) The single bud formation in which there is a scarcity of foliage along that portion of the branch where most of the fruit is borne, e.g., St. John. The accompanying illustrations will serve to make these two types of bud formation clearer.



Peach Buds ready for emasculation at top, emasculated below.

When emasculating blossoms in the past we have been rather free with the knife cutting back until good flower buds were obtainable. While working with trees having the triple bud formation this method is practicable, but as several of the better varieties we are using in the breeding work have the single bud formation care will have to be taken in cutting back because such cutting back in varieties or twigs having the single bud formation removes a large percentage, if not all, the leaf surface from the twigs worked with, the consequence being that the resultant fruit is poorly nourished, and while many set very few reach maturity.

The 1917 breeding work in peaches is given in the following list:—

TABLE VII.—1917 PEACH HYBRIDIZING.

Cross.	Number Pollinations.	Number Fruit gathered.
St. John x Aip.....	86	12
St. John x Early Crawford.....	126	22
St. John x Mayflower.....	50	26
Elberta x Greensboro.....	93	18
Elberta x St. John.....	93	18
Early Crawford x Aip.....	89	17
New Prolific x Greensboro.....	49	12
New Prolific x Early Crawford.....	31	6
Arp x Mayflower.....	100	36
Arp x Early Crawford.....	100	48
Arp x Elberta.....	100	65
Arp x St. John.....	100	53
St. John x Mayflower.....	50	26
St. John selfed.....	150	6
Elberta selfed.....	197	27
Mayflower selfed.....	120	4
Triumph selfed.....	97	.....
Early Crawford selfed.....	148	19
New Prolific selfed.....	121	10
Arp Beauty selfed.....	100	33
Elberta Seedling selfed.....	200	78
	2,260	536



A block of seedlings, showing poor germination under field conditions.

PEARS.

Seedlings: The seedlings of Kieffer, Flemish Beauty and Bartlett previously reported on are now planted at fruiting distance in Sections 8 and 9, and are all making satisfactory growth. A large number of pear seeds were planted in the fall of 1915 in the same area with the cherries and plums in Section 1. As with the cherries and plums, poor germination was obtained; 141 seeds germinated from 7,200 planted of the varieties Kieffer, Anjou and Clairgeau.

Seeds in large quantities were obtained and planted in the fall of 1916, for a repetition and extension of the 1915 work. These seeds were planted in flats and given cold frame treatment in the spring of 1916, since with the seeds of woody plants our experience has forced us to seek new methods of germinating these seeds, though at the Central Experimental Farm, Ottawa, they have found that under their conditions seeds will germinate quite as well by being planted directly in the nursery row in the open field in the fall. Following is a list of the varieties and number of seeds planted and the number now growing:—

	No. Seeds Planted.	No. Growing 1917.		No. Seeds Planted.	No. Growing 1917.
Bartlett	1,376	1,150	Woolverton Seckel.....	2,394	1,764
Clairgeau.....	642	479	Sheldon	408	168
Anjou	1,034	349	Bosc	487	383
Louise Bonne	503	284	Le Conte	1,174	785
Giffard	100	96	Kieffer	544	285
Flemish Beauty.....	1,529	942	Duchess	1,668	1,387
Goodale	1,602	1,230	Mount Vernon.....	676	158
Lawrence.....	690	504			
			Total.....	14,827	9,964

As will be readily seen an excellent germination was secured by the use of cold frames:—

The following seeds were planted in the fall of 1917:—

Giffard.....	2,825	Seckel	560
Clapp's	489	Anjou	1,020
Flemish Beauty	850	Bartlett Lot 1 (picked commercially)..	1,000
Duchess	255	Bartlett Lot 2 (ripened on tree).....	525

Hybrids: The seeds obtained from crossing work in 1915 were planted individually in pots and were then transplanted to nursery rows in Section 1. In the spring of 1918 they will be transplanted to permanent fruiting quarters. In table VIII is given the number of seeds originally planted, the germination, and the number of plants at present growing. The germination was better than would be indicated in this table as a large percentage of the young plants succumbed to "damping off" in the excessive wet spring.

TABLE VIII.—PEAR HYBRIDS OF 1915 WORK.

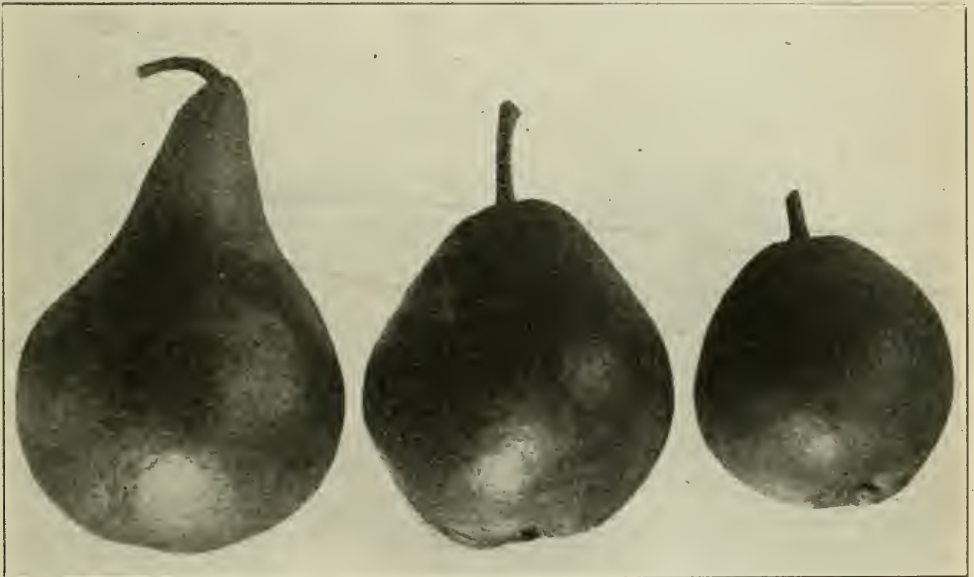
Cross	No. Seeds Planted	Germin- ation	Alive Sept. 1917
Duchess x Bessemianka	21	15	14
Duchess x Clapp's.....	7	2	2
Duchess x Kieffer.....	13	3	3
Duchess x Anjou	8	2	1
Duchess x Sheldon.....	29	2	2
Duchess x Tonkavietka.. ..	20	11	8
Duchess x Bosc	1	0	0
Clapp's x Comice	15	1	1
Bartlett x Tonkavietka	74	36	30
Bartlett x Gliva Kurskaya.....	2	0	0
Bartlett x Sheldon	30	10	7
Bartlett x Bosc.....	171	55	49
Bartlett x Anjou	162	21	20
Bartlett x Bessemianka	50	16	14
Bartlett x Clapp's.....	39	8	8
Bartlett x Kieffer.....	20	4	4
Bartlett selfed.....	2	2	1

No crossing work was done with pears during the season of 1916 owing to the absence for military reasons of the Hybridist during the blooming period.

During 1917, 3,056 pollinations were made, but weather conditions were very unfavorable for the setting of fruit. Only 67 fruits set and 54 were finally gathered.

Zenia in Pears: In the Bosc x Clapp's Favorite crosses different types of fruit resulted. Two of the fruits resembled Bosc, while three were intermediate in type between the two other types present in the accompanying illustration.

When the fruit was being cut to remove the seeds there was a decided difference in texture, the Bosc was quite tender whereas the others were very gritty, coarse and seemed contracted. In this case it would seem as though the pollen had some influence on the fruit as the fruit all came from one Bosc tree and except for the two like Bosc the others closely resembled Clapp's, but ripened with Bosc.



Zenia in pears, Bosc and Clapp's Favorite.
(Slightly reduced.)

PLUMS.

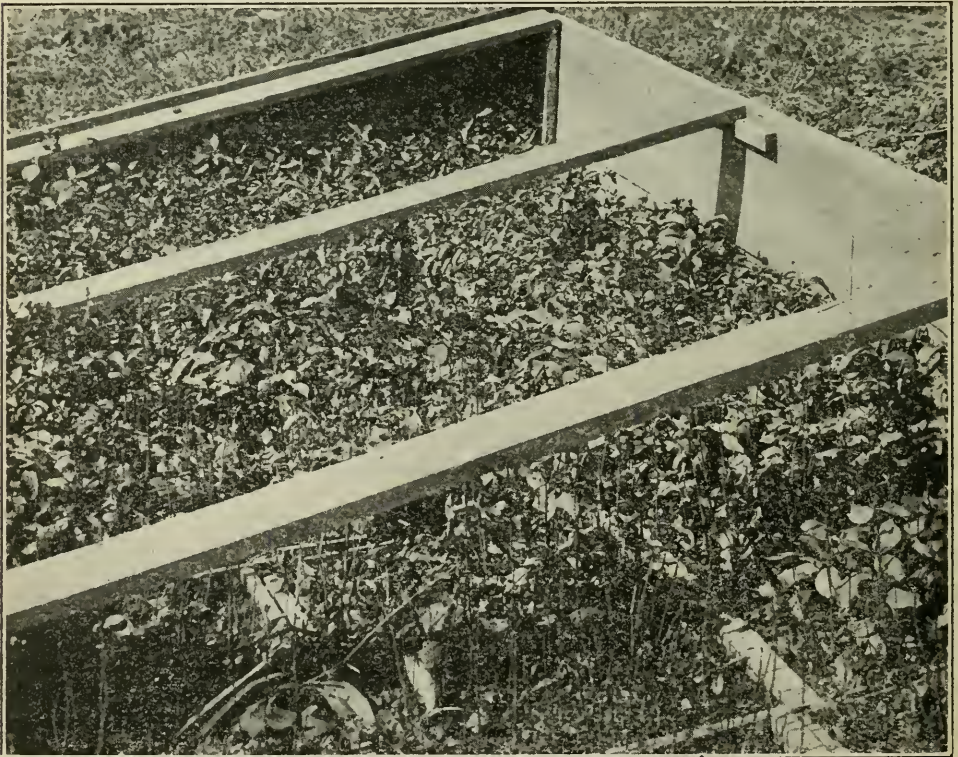
Seedlings: The seedlings planted out in 1915 have been moved to permanent fruiting quarters in Section 8, and are making satisfactory growth. The seeds planted directly in the field in the fall of 1915 gave very poor germination. This, no doubt, was due to the unfavorable weather conditions in the spring and now that additional cold frames are available for this work, it is hoped that more satisfactory results will be obtained. The accompanying illustration shows the poor stand of seedling plants secured when it is considered that the seeds were planted in squares about one inch apart over the beds.

Table IX gives the list of seeds planted in 1915, the germination and the number now living and to be transplanted in the spring of 1918:—

TABLE IX.—GERMINATION OF PLUM SEEDS PLANTED IN 1915.

Variety	Number Planted	Germination 1916	No. Alive Sept. 1917
Yellow Egg	2,100	0	0
Pond's Seedling	3,000	25	24
Coe's Golden Drop.....	1,500	340	218
Washington	500	0	0
Gueii	600	0	0
Shiro	1,600	20	16
Burbank.....	2,000	0	0
Lombard.....	4,000	162	148
Riley Damson	600	60	43
King of the Damsons	1,000	16	16
Apricot.....	2,500	190	57
Total.....	19,400	813	522

Over 14,000 plum pits of the varieties: Shiro, Washington, Gueii, Yellow Egg, Lombard, German Prune, Pond's Seedling, Reine Claude and Duane Purple were collected in 1916, planted in flats, and buried two or three inches in cold



Excellent germination of seed has been secured by the use of cold frames rather than planting the seeds in the open field.

frames. In the spring, they were given cold frame treatment and a good germination secured (3,431). These will be planted out in nursery rows in 1918.

Some 5,150 pits, representing ten of our leading commercial varieties have been saved and planted in cold frames. In washing these pits after they have been extracted from the pulp it was noticed that several seeds floated. In the case of Gueii about 75 per cent. floated, while in others the number was much less and some had no floaters. Several of the pits which floated were cracked and in no case was the kernel fully developed while in many cases it was completely shrivelled. The seeds which sank had full plump kernels.

The floaters were separated from the sinkers and planted separately. Many of the floaters were useless but as some were a half or more filled out, these were treated as good ones to see if germination would take place. If none of these floaters germinate, in future all that will be necessary will be to separate them and plant only the sinkers.

Hybrids: The following were transplanted to permanent fruiting quarters in the spring of 1917 and are making satisfactory growth:—

Greengage x Lombard	2	Lombard x Grand Duke.....	2
Coe x Grand Duke.....	3	Lombard x Hand.....	1
Washington x Grand Duke.....	1	Lombard x Coe.....	2
Lombard x Yellow Egg.....	8		

Table X gives the results of the hybridizing work of 1915. These pits were planted at the end of the winter season in the greenhouse and there are still some seeds remaining dormant in the soil and which are, to all appearances, still in good condition. They may germinate later. Those which germinated are in nursery rows, Section 1, and will be transplanted to fruiting quarters in the spring of 1918.

TABLE X.—GERMINATION OF PLUM PITS FROM 1915 BREEDING.

Cross	No. Pits Gathered	No. Pits Planted	Germin- ation	Alive Sept. 1917
Reine Claude x Coe	5	5	0	0
Reine Claude x Yellow Egg	4	4	0	0
Washington x Yellow Egg.....	8	8	1	1
Washington x Coe	12	10	0	0
Lombard x Hand	49	48	20	5
Lombard x Grand Duke.....	65	65	8	7
Yellow Egg x Washington.....	12	11	4	2
Yellow Egg x Reine Claude	1	1	0	0

The breeding work with plums in 1916 was confined to an endeavor to self-fertilize the Shiro, which was unsuccessful, and to crossing the Shiro with *P. simonii*. Nine hundred and twenty-four pollinations in all were made which yielded 15 fruits from the cross.

In 1917, the work with plums was reduced as past experience has demonstrated that outdoor breeding of plums is a waste of effort. The 1917 work consisted in an endeavor to self-fertilize four varieties—Gueii, Reine Claude, Washington and General Hand. Gueii and Reine Claude yielded 77 and 7 fruits respectively. Washington and General Hand failed to set any fruit. One thousand one hundred and sixty-four blossoms in all were covered.

GRAPES.

Many of the hybrids of the 1913 breeding fruited during the 1917 season. The fruit was in all cases described roughly, and those vines which gave considerable promise were retained. The remainder were removed at once.

The results on the whole from the grape breeding have been distinctly encouraging. Several hybrids of considerable promise have been found, though only 237 vines out of the 815 total have fruited. In seedlings of which only the maternal parent is known 344 vines fruited and there are 1,624 yet to fruit. The results here have also been encouraging. No attempt will be made in this report to describe any of the better hybrids or seedlings secured, but in another season or two we will be better able to judge as to the merits of the vines saved and report will be made at that time.

In general the chief reasons for which vines were removed were as follows:—

(1) A great many had a large, too firm centre to the fruit which it was impossible to swallow or could be swallowed only with considerable difficulty.

(2) A few had reverted. Fruit small, hard.

(3) A few were very late, so late that they could never be of commercial value as they would seldom mature.

(4) Some were very acid.

(5) Size caused several others to be removed. Unless a berry had some decidedly good qualities to make up for the lack of size it was removed.

(6) In some the pulp had no character at all, it was simply mush and tasteless.

(7) Lack of sufficient vigor in the vines.

With regard to the 1914 hybridizing work, particulars of the germination and number of vines transplanted were given in the 1915 report. There have been, of course, a considerable number of casualties during the past two years, as is shown by the following figures: Of 40,129 hybrid seeds planted in April, 1915, 4,431 germinated, and were transplanted to the field. At the present time, 1,900 plants are growing. In addition, 176,386 seeds of which only one parent is known, were planted in April, 1915. Ten thousand six hundred and forty-three, or 6.03 per cent. of these germinated and were transplanted in 1916. This number has been reduced by casualties to 2,539 at the present time. It is only fair to say that the great mortality has been chiefly due to the very unsuitable soil and site on which it was necessary to plant the small seedlings and hybrids. Fortunately, there is much good land available for future work so that we shall be able to avoid such discouraging losses.

The seeds obtained from the 1915 hybridizing work were planted individually in thumb pots and were held over the winter of 1916-17 in the same pots in the greenhouse. Past experience had shown that young grape seedlings would not stand transplanting from flats when very small, hence the planting of 1915 seeds in the thumb pots. Table XI gives the germination and the number now growing of the 1915 crosses: These are at present in nursery rows in Section 1 from where they will be transplanted to permanent fruiting quarters in the spring of 1918.

TABLE XI.—GRAPE SEEDS OF 1915 BREEDING PLANTED NOVEMBER, 1915.

Cross	Number Seeds Planted	Number Germinated	% Germination	Number Growing July, 1916	Number Growing Sept. 1917
Niagara x Herbert.....	5	.....	.....	.....	.....
Niagara x Delaware.....	139	31	22.30	27	.....
Niagara x Catawba.....	17	3	17.64	.....	.....
Niagara x Agawam.....	233	45	19.31	39	.....
Niagara x Vergennes.....	28	9	32.14	6	.....
Niagara x Concord.....	318	90	28.30	66	6
Niagara x Black Hamburg.....	63	39	61.9	32	2
Niagara x Muscat of Alex.....	16	.....	.....	.....	.....
Niagara x Champion.....	63	35	55.55	31	.....
Niagara x Campbell.....	354	198	55.93	157	3
Campbell x Agawam.....	36	7	19.44	7	.....
Campbell x Black Hamburg.....	64	7	10.93	7	.....
Campbell x Delaware.....	32	9	28.12	6	.....
Agawam x Concord.....	1,388	432	31.12	370	5
Agawam x Niagara.....	1,293	497	38.43	476	83
Agawam x Campbell.....	157	57	36.30	45	2
Agawam x Delaware.....	28	4	14.28	3	.....
Lindley x Campbell.....	416	303	72.82	264	9
Lindley x Moore.....	127	98	77.16	92	11
Lindley x Champion.....	235	179	76.17	161	102
Lindley x Concord.....	512	380	74.21	336	16
Lindley x Delaware.....	103	64	62.13	55	20
Lindley x Niagara.....	482	300	62.28	263	114
Lindley x Worden.....	991	717	72.35	637	239
Salem x Concord.....	174	33	18.9	32	7
Salem x Champion.....	23	7	30.43	7	.....
Salem x Niagara.....	82	21	25.60	20	.....
Salem x Worden.....	.....	280	.....	190	160
Wilder x Campbell.....	47	13	27.65	12	3
Wilder x Concord.....	25	11	44.00	11	1
Wilder x Champion.....	4	2	50.00	1	2 ?
Wilder x Delaware.....	38	11	28.94	11	4
Wilder x Worden.....	46	22	47.82	19	14
Wilder x Niagara.....	92	39	42.39	38	8
Massasoit x Concord.....	.....	200	.....	122	91
Massasoit x Delaware.....	91	30	32.96	23	20
Massasoit x Worden.....	.....	163	.....	149	52
Vergennes x Campbell.....	.....	387	.....	134	80
Vergennes x Delaware.....	.....	320	.....	204	79
Vergennes x Champion.....	.....	320	.....	284	55
Vergennes x Niagara.....	.....	208	.....	52	14
Vergennes x Worden.....	.....	284	.....	180	73
Vergennes x Concord.....	.....	480	.....	391	65
Isabella x Concord.....	65	22	33.84	22	9
Isabella x Niagara.....	8	1	12.5	1	.....
Catawba x Niagara.....	96	25	26.04	20	2
Muscat of Alex. x Catawba.....	11	.....	.....	.....	.....
Banner selfed.....	.....	200	.....	130	42
Caco selfed.....	.....	40	.....	26	7
Charlton selfed.....	25	9	36.00	8	3
Chasselas avec Royal selfed.....	.....	80	.....	46	5
Colerain selfed.....	63	15	23.80	14	1
Winchell selfed.....	135	13	9.62	13	1
Early Ohio selfed.....	.....	80	.....	40	14
Elvira selfed.....	.....	120	.....	75	39
Green Early selfed.....	.....	420	.....	271	67
Hartford selfed.....	118	2	1.70	2	1
Hermann Jæger selfed.....	.....	120	.....	69	7
Hicks selfed.....	128	34	26.56	32	2
Iona selfed.....	.....	160	.....	79	14
Isabella selfed.....	47	.....	.....	.....	.....
King selfed.....	.....	40	.....	23	5
Lutie selfed.....	.....	120	.....	104	10

TABLE XI.—GRAPE SEEDS OF 1915, BREEDING PLANTED NOVEMBER, 1915.—*Continued.*

Cross	Number Seeds Planted	Number Germinated	% Germination	Number Growing July, 1916	Number Growing Sept. 1917
Manito selfed.....		40	.....	11	4
McPike selfed.....		160	.....	102	21
Niagara selfed.....		40	.....	15	8
Pense Malaga selfed.....	56	.....	.....	.....	.....
Perkins selfed.....		363	.....	215	114
Wilkins selfed.....		60	.....	45	19
Vergennes selfed.....		1,042	.....	730	421
Agawam selfed.....	250	32	12.80	32	.....
Campbell selfed.....		360	.....	223	26
Concord selfed.....		320	.....	179	105
Duchess selfed.....		7	.....	7	4
Eaton selfed.....		3	.....	3	.....
Pierce selfed.....		14	.....	14	10
Worden selfed.....		27	.....	27	15
Diana selfed.....		10	.....	10	5
Total.....		10,314	.....	7,548	2,261
Total, exclusive of those where the number planted was not known..	8,724	3,846	44.08	.....	.....

A study of the above table reveals the fact that the mortality in the young grape seedlings has been as bad if not worse, as in the previous method employed of growing the seedlings in flats. The reason for the great mortality in the use of thumb pots lies in the fact that it is extremely difficult to prevent the pots



Hybrid grapery from seed secured from plant breeding work in 1913. The seedlings are planted about one foot apart, in rows four feet apart, the intention being to fruit the vines for one or two seasons and then remove all but the promising hybrids.

from drying out. The method of raising the young seedlings now employed, and which gives every evidence of excellent results, is simply planting the seeds as soon as secured in the fall in cold frames in prepared soil, but without the use of either flats or thumb pots. A return to the use of flats was made in 1916, but in this case the flats were placed in cold frames, and the seed germinated there and is being held over in the flats until the spring of 1918. This method has given a germination of practically 60 per cent., which is good, but the difficulty now lies more in the transplanting than in the securing of a good germination. It is expected that planting direct in the frames without the use of flats will solve this difficulty.

The results of an experiment in the fall of 1915 to determine the best method of handling grape seeds point definitely to the fact that the seeds should be extracted from the pulp and then not allowed to become dry for any length of time before being planted. The outline of the experiment was given in the 1915 report, page 27. The result is given in the following table:—

TABLE XII.—RESULTS OF EXPERIMENT IN GERMINATION OF GRAPE SEEDS.

Variety	Exp. 1	Exp. 2	Exp. 3	Exp. 4	Exp. 5
	%	%	%	%	%
Lindley, Germination.....	0	81	87	7	10
Concord " 	0	44	14	3	0
Massasoit " 	0	74	24	13	1



Hybrid grapes growing in nursery rows. They will be transplanted to fruiting rows in the spring.

HYBRIDIZING OF 1916: Table XIII outlines the crossing work done with grapes for 1916. It will be noted that self-fertile varieties have been used as the female parent which means, of course, that it was necessary to emasculate before pollinating.

TABLE XIII.—SUMMARY OF GRAPE CROSSING, 1916.

Cross	No. Seeds planted	No. Seeds Germinated	Per cent. Germination
Campbell x Delaware	242	170	70.2
Campbell x Read Hybrid.....	1,430	474	.....
Campbell x Winchell.....	990	525	53.02
Campbell x Diamond.....	385	243	63.3
Worden x Delaware.....	66	37	56.06
Worden x Read Hybrid.....	118	52	44.06
Worden x Winchell.....	88	47	60.09
Worden x Diamond.....	55	36	70.9
Niagara x Delaware.....	330	203	61.5
Niagara x Diamond.....	473	268	56.65
Niagara x Read Hybrid.....	1,320	852	64.5
Niagara x Winchell.....	1,078	700	64.9
Concord x Delaware.....	110	62	56.3
Concord x Diamond.....	112	46	41.07
Concord x Read Hybrid.....	139	73	52.5
Concord x Pierce	44	1	2.2
Pierce x Concord	24	7	29.1
Chasselas avec Royal x Concord.....	44	36	81.8
Chasselas avec Royal x Niagara.....	82	43	52.4
Iowa x Winchell.....	222	89	40.49
Total.....	7,352	3,964	53.91

Care must be taken another year not to start emasculating the blossoms too soon, as those emasculated before full maturity die before they are ready for pollination, especially if unfavorable weather intervenes. The Concord suffered the worst in this way in the 1916 work.

SELF-STERILITY TESTS: Incidentally with grape breeding, self-sterility tests were made of many of the varieties in the variety test block. The fruit resulting from this work has been saved and the seeds will be grown to further supplement the above breeding work. The list below shows the grape seeds secured from the self-sterility tests in 1916, and which were planted that fall in cold frames.

Wilder x Campbell	1,155	Moore's Early selfed	660
Wilder x Niagara	990	Vergennes "	6,105
Wilder x Concord	990	Champion "	660
Wilder x Worden	1,618	Pierce "	207
Agawam x Worden	891	McPike "	495
Agawam x Niagara	572	Pocklington "	660
Agawam x Concord	825	Green Early "	1,142
Agawam x Campbell.....	1,155	Niagara "	445
Brighton x Concord	2,465	Pense Malaga "	1,155
Brighton x Worden	3,300	Campbell "	937
Brighton x Campbell.....	3,465	Lutie "	495
Salem x Concord.....	1,980	Read Hybrid "	589
Salem x Worden	1,980	Caco "	544
Salem x Campbell	1,980	Early Ohio "	165
Salem x Niagara	2,145	Winchell "	660
Herbert x Campbell.....	1,130	Delaware "	318
Herbert x Concord	1,320	Isabella "	291
Herbert x Worden	1,650	King "	165
Herbert x Niagara	1,485	Hartford "	319
Lindley x Campbell	317	Hicks "	330
		Lucile "	660
		Agawam "	487
		Diana "	330
Total unemasculated crosses....	32,413	Total selfed seeds	17,819

With the result of the germinating experiment in mind, all these grape seeds were planted in flats as soon after they were extracted from the pulp as was convenient, buried two or three inches in flats in cold frames and given cold frame treatment in the spring of 1917. A germination of practically 60 per cent. has been secured, and the young seedlings are now being held in the cold frames ready to transplant in the spring of 1918.

HYBRIDIZING OF 1917: The work in 1917 consisted altogether of saving and planting the seed from the experiment in pollination of certain self-sterile varieties with self-fertile varieties. Salem, Wilder, Herbert, Lindley and Agawam were each crossed with Campbell, Concord, Niagara and Worden. Sixteen thousand and nine seeds were secured and have been planted in cold frames where they will germinate in the spring of 1918.

BLACKBERRIES.

The blackberry seed gathered from the 1915 crossing work (page 28, 1915 report) was planted shortly after being gathered, and was given various treatments in an effort to induce the seed to germinate. Up until the spring of 1917, however, very few seeds germinated, but that spring, after they had been planted a year and a half, they germinated in fairly large numbers. Those which germinated the first year are now in nursery rows in Section 1 from where they will be moved to permanent fruiting quarters in the spring of 1918.

With the kind permission of Messrs. David Troup, J. Hedden and Jerome Tufford, of Jordan, to work in their blackberry plantations, some of this work was repeated in 1916 and 1917. The following table summarizes the results of the two seasons' work:—

TABLE XIV.—BLACKBERRY CROSSING, 1916 AND 1917.

Cross	No. Pollinations	No. of Fruits gathered
Wilson x Early Blackberry (1916)...	221	107
Wilson x Lucretia " " " "	247	112
Wilson selfed " " " "	180	108
Wilson x Wachusett (1917)	242	147
Wilson selfed " " " "	176	77 Many more set but unfortunately were removed by pickers.
Agawam x Wilson " " " "	120	83
Agawam x Wachusett " " " "	129	98
Agawam selfed " " " "	62	47
Wachusett x Agawam " " " "	400	21 The poor set in the Wachusett crosses
Wachusett x Wilson " " " "	269	4 is due to the close conditions in the
Wachusett selfed " " " "	170	41 tents caused by the large amount of foliage.
Loganberry " " open poll.	200 approx.	54 These were found growing at the edge of the bush adjoining the "farm."
Wild Blackberry " " " "	.....	Plants very prolific with cylindrical compact berries with small drupelets.
Wild Dewberry " " " "	.....	56 To all appearances these are the same as the blackberry, only of a trailing nature and root at the tip readily, two characters of the dewberry. The fruit is large, good quality, conical in shape with large shiny drupelets, very early.

This blackberry here called Early Blackberry in the 1916 work, for want of a better name, is growing on Mr. J. Hedden's farm at Jordan. The original plants came from Pennsylvania about twenty-five years ago. It is early, of good quality, ripens all its fruit in two or three pickings and is as rust free as the Wilson, though not quite so hardy. The variety is probably Agawam.

In addition to the above, the following quantities of blackberry seed were planted in 1916 from which to grow seedlings:—

Early Blackberry	3 flats.	Kittatinny	4 flats.
Wilson	4 "	Taylor and Wachusett (mixed). 4 "	

In this connection also might be mentioned one flat of loganberry seeds planted for the same purpose.

In the spring of 1917 a blackberry plantation was added to the Station and in future we hope to be able to do all such work at home and thereby save much time otherwise spent in going to and from the different plantations. No work on dewberries was done because there are no plantations in the neighborhood. Several varieties have been planted with the blackberries in Section 1.

Owing to the difficulty experienced in securing a good germination from blackberry seed experiments were outlined as follows to ascertain the best way of handling this seed.

Three varieties Early Black (Agawam), Wilson and Kittatinny were used in all cases.

Experiment No. 1.—Seed planted immediately upon ripening, with fruit detached and attached, in sterilized and in ordinary soil. Twelve lots in all.

Experiment No. 2.—Seed treated as in No. 1 but buried about six inches deep to remain there all winter and to receive cold frame treatment in the spring. Twelve lots in all.

Experiment No. 3.—Seed treated as in No. 1, buried as in No. 2, but to be lifted and given greenhouse care in February. Six lots in all.

Experiment No. 4.—Seed dried for one month in sand and then given growing conditions right away. Six lots in all.

Experiment No. 5.—Seed dried as in No. 4, but buried six inches deep and left until spring when they should receive cold frame treatment. Six lots in all.

Experiment No. 6.—Seed dried in No. 4, planted as in No. 5, but to be lifted and given greenhouse treatment in February. Six lots in all.

But, like all other slow germinating seed treated in pots the results were mostly negative, 10 per cent. being the highest germination obtained. The reason for this is: the pots are set and the constant watering with poor drainage, which is usual in small pots, allows moss and other foreign matter to start long before the seeds, with the results that none of the seedlings can get through. If any attempt is made to remove the moss the germinating seeds are disturbed and as in the other case the results are negative.

Pots for germinating all such seed have been discarded and we now simply use cold frames covered with sash. As soon as the berries ripen they are mashed in sand and when all are picked they are planted into good soil in the cold frames. A mulch of leaves is then put over this to prevent drying out and to keep down weeds. By winter this mulch is beaten down sufficiently so that the action of the frost is not retarded, but at the same time it prevents sudden thawing and freezing from taking place.

In the spring when the days begin to get warm these leaves are removed and sash takes their place. Care must be taken as to ventilation, etc., at this time.

as the nights are still cold and extra heating during the day would be disastrous. The young plants are then left in these frames until the spring following germination when they are removed to the field.

The use of flats for such work in cold frames has been discarded also. They are very handy, should any moving be necessary, but during the summer in hot weather constant watering is necessary to keep them from drying out. Another big disadvantage is, that the roots become too matted to separate without destroying many at planting time, also a great many roots grow through the drain holes in the flats and cracks in the bottom of the flat and are consequently destroyed when the flat is moved. Then, too, the soil in a flat is shallow and limited in amount which starves and dwarfs the seedlings very materially.

CURRANTS AND GOOSEBERRIES.

With the exception of the germination secured from seed planted, results of the 1915 hybridizing work on currants and gooseberries were included in a table in the 1915 report of the Station, page 28. All of the seed secured failed to germinate with the exception of Pearl, Whitesmith and Broom Girl gooseberries, self-fertilized; and in currants: Eclipse and Fay's Prolific selfed.

Similar work was carried on in 1916 and 1917 with results as tabulated in the following tables:

TABLE XV A.—CURRANT AND GOOSEBERRY BREEDING, 1916.

Cross	No. Poll.	No. Fruits Gathered	Remarks
Broom Girl x Pearl.....	545	320	Plant in the field. Was unable to complete owing to adverse weather conditions and considerable work done on it was lost.
Wyndham's Industry x Pearl.....	78	33	
Ironmonger x Pearl	75	38	
Pearl x Broom Girl.....	.....	.....	
Rubus Cynosbati x Broom Girl ...	142	42	Seeds smaller than normal currant seeds.
Black Champion Currant selfed... ..	.....	622	
Black Champion Currant x Broom Girl (Eng. Gooseberry).....	1,358	888	

The 1917 gooseberry crosses were made with the hopes of getting hardiness, quality and thornlessness, the *Ribes cynosbati* being used for the latter purpose.

Attempts were made to cross the currant and gooseberry, but owing to the gooseberry blooming a week ahead of the black currant the pollen lost its vitality and no fruit set. In future, the varieties required will be brought in the fall into the greenhouse where it will be possible to control the blossoming period.

TABLE XV B.—GOOSEBERRY BREEDING, 1917.

Cross	No. Pollinations	No. Fruit Set	No. Fruit Gathered
Industry x Broom Girl.....	115	71	71
Broom Girl x Industry	202	114	114
Broom Girl x Keen's Seedling.....	.....	73	73
Ribes cynosbati x Broom Girl.....	10	7	7
Ribes cynosbati x Industry.....	17	10	7
Keen's Seedling x Broom Girl.....	39	0	0
Broom Girl x Ironmonger	72	55	35
Industry x Ironmonger.....	31	10	10
Ironmonger x Broom Girl	46	9	9

Seedlings.—Currant and gooseberry seedlings planted in 1915 were held over in flats and were transplanted to the field in May, 1916. The list of the number transplanted was included in the 1915 report. There have been few casualties since transplanting.

The currant seed saved in 1915 germinated remarkably well and a large number were transplanted to the field. Gooseberries, however, germinated very poorly. Table XVI shows the number transplanted and the number growing in the field October, 1916. No later count has been made of the number now growing. The high percentage of loss here shown in the currants was due to the abnormally dry season. They were put out when the soil was moist and in good condition, and were watered, but large percentages succumbed later to drought.

TABLE XVI.—CURRANT AND GOOSEBERRY PLANTS GROWING, 1916, FROM SEED SAVED AND PLANTED IN 1915.

	No. Planted Out	No. Growing Oct. 1916
Currants:		
Fay's Seedlings	550	280
Red Cross Seedlings	500	139
Victoria Seedlings .....	.....	1
Ruby Castle Seedlings	400	47
Diploma Seedlings	800	194
Perfection Seedlings	100	49
Pomona Seedlings	400	91
Prince Albert Seedlings	500	108
Lindley Market Seedlings	500	1
North Star Seedlings	450	108
Cherry Seedlings .....	.....	4
Versailles Seedlings	100	1
Eclipse Seedlings	600	72
Climax Seedlings	550	123
Collin's Prolific Seedlings	700	167
Boskoop Giant Seedlings	800	276
Saunders Seedlings	400	144
Black Champion Seedlings	500	276
White Grape Seedlings	200	66
White Imperial Seedlings	250	62
Gooseberries:		
Champagne White Seedlings .....	.....	144
Red Jacket Seedlings .....	.....	0
Keepsake Seedlings .....	.....	6
Houghton Seedlings .....	.....	146
Hedgehog Seedlings .....	.....	0
Josselyn Seedlings .....	.....	0
Downing Seedlings .....	.....	130
Industry Seedlings .....	.....	16
Pearl Seedlings .....	.....	54

A large number of gooseberry seeds were planted out in the fall of 1916. No currants were planted, however, as there were already a very large number of seedlings and hybrids growing. Following is a list of the gooseberry seed planted. The quantity sown in each flat is sufficient for the flat without being disturbed when lifted in the spring. There are three flats each of:

Keen's Seedling	Victoria	Crown Bob
Whitesmith	Downing	Pearl
Triumph	Broom Girl	Pitmaston Greengage
Industry	M. C. S.	Keepsake
Champagne White	Lancashire Lad	Hedgehog
Green Gascoigne	Ironmonger	Leader
Bright Venus	Red Jacket	Champagne Yellow (one flat only)
Houghton	Langley's Beauty	

These have been kept in the flats over the season of 1917 and will be transplanted to the field in the spring of 1918. A very large percentage of the seed germinated.

ELDERBERRIES.

A large number of elderberry seeds were gathered during 1916, four flats being planted. They were treated the same as other small seeds; planted shortly after gathering and buried one or two inches in the cold frame until the spring when they were raised to the surface and given cold frame treatment. A fair germination was secured.

RASPBERRIES.

Raspberries of 1913 breeding that failed to fruit in 1915 were described in 1916. Thirty selections were made in 1915 and transferred to a small plantation to be grown for future test. Several more selections were made in 1916.

The plants from 1914 breeding were kept in the nursery row until May, 1916, when they were planted in a permanent plantation three feet apart each way.



Describing hybrid raspberries. Out of this block of three thousand individual plants raised from seed and fruited, four hundred have been retained as worthy of further trial.

These plants made a reasonable growth during 1916, and most of them fruited in 1917. Descriptions were made of those which fruited. Those considered worthy of further trial were retained, all others being removed. A list of the original plantation is given on page 31, 1915 report. Of the total of 5,070 hybrids and seedlings there shown, 452 have been retained. This includes quite a number which have not yet fruited and most of which will likely be discarded after fruiting.

In those saved are also eighteen plants of *Rubus occidentalis*, the wild black caps, as found growing in the woods. The seed was sown and treated with the rest of the *Rubus* species. Under the more favorable conditions in which the

plants grew much more vigor was noted. All fruited in 1917 and gave a very uniform lot of fruit, all of which was better than that of the parent. Of these, eighteen were saved for further trial. As it is a well known fact that the black caps do better after being planted a year or two we may find them equal to our cultivated varieties another year.

The Gregg seedlings, of which there were ninety-three plants, nearly all fruited, and gave a most uniform crop of fruit, all of which seemed to have more size although perhaps not the usual quality of Gregg. These were all saved to fruit again next year.

A prevalent idea to-day is that Gregg is simply the wild species brought into cultivation, and as they have come so true from seed and the wild ones are so much like Gregg one would be almost justified in this belief.

Of the plants from 1915 breeding all are growing in Section 1, and for the most part are a very thrifty lot. A few Cuthbert x Gregg fruited and these in every case were of the purple cane type. Another year all should fruit.

Raspberry crossing was continued in the season of 1916, several of the F_1 hybrids of the 1913 breeding work being used also. These are designated by numbers. Table XVII outlines the work:

TABLE XVII.—RASPBERRY BREEDING, 1916.

Cross	No. Poll	Fruits Gathered	Remarks
1077 x 1089	578	274	
1950 x 1929	265	112	
481 x Cuthbert	243	227	
Gregg x Cuthbert.....	614	45	
Cuthbert x Gregg.....	435	.....	
Gregg selfed	12 sacks	61	Each sack covered a spike.

The breeding work in 1917 consisted chiefly of selfing of several of the selections from 1913 breeding partly to see how they break up. Several yellow fruited plants were selfed for the same reason.

TABLE XVIII.—RASPBERRY BREEDING, 1917.

No. of Hybrid	Parents	No. Pollinations	No. Set	No. Gathered	Remarks
1812.....	Herbert x Cuthbert.....	75	57	30	All under the bags set poorly showing a partial self-sterility, to, in some cases complete self-sterility, i.e., 1866 and 2501.
1866.....	Herbert x Cuthbert.....	50	.....	.....	
1885.....	Herbert x Cuthbert.....	74	22	22	
1892.....	Herbert x Cuthbert.....	125	58	30	
2702.....	Cuthbert x Herbert.....	59	27	27	
2807.....	Cuthbert x Herbert.....	64	24	24	All outside set fairly well considering the weather conditions, etc., at the blooming period.
421.....	(Yellow) Marlboro x Herbert..	76	30	30	
1002.....	(Yellow) Marlboro x Cuthbert.	96	50	50	
1067.....	Marlboro x Cuthbert.....	64	22	22	
2501.....	Cuthbert x Marlboro.....	74	.....	.....	
	Cuthbert x Herbert	150	141	141	

STRAWBERRIES.

Seedlings: The seedlings Nos. 37 and 40 as reported on previously are now being tested out in the commercial block, but as yet their value has not been ascertained.

Hybrids: The strawberries of 1913 breeding did not all fruit in 1915. The plantation was retained and those not recorded before were described in 1916. The only further selections made were twenty-eight selected especially for earliness. All the plants that did not fruit the first year were found to be inferior. The plantation of those selected last year were transplanted to Section 3 where each individual is represented by a matted row of about 50 ft., and where it was intended they should be compared for yield, quality, etc., against the commercial varieties. The site and soil have proven very unsuitable, however, many of the selections in the particularly low spots being almost completely killed out. A new plantation will be made in 1918 on the new Station property.

The plantation of strawberries of 1914 breeding located on Section 3 is still retained in the individual hills. A large percentage of these plants did not bloom during 1916 and owing to this fact records were not taken that year.

The plants secured from 1915 breeding were transplanted to the field in Section 3 in May, 1916. Table XIX gives the particulars of the number transplanted and the number now living. The first part of the table in which each plant is designated by number represents plants secured from previous hybridizing work which have been self-fertilized. The latter part of the table represents further variety crosses made.

TABLE XIX.—STRAWBERRY PLANTS SECURED FROM 1915 BREEDING.

Name	No. Trans-planted	No. Now Living	Name	No. Trans-planted	No. Now Living
20 selfed	14	14	573.....	9	8
21.....	13	9	574.....	23	21
22.....	7	2	576.....	13	12
23.....	17	13	577.....	17	17
24.....	25	25	578.....	20	19
26.....	18	17	586.....	9	9
27.....	8	7	587.....	3	2
28.....	16	16	588.....	9	8
30.....	13	7	1214.....	3	2
32.....	9	9	1220.....	5	3
33.....	14	11	5820.....	6	5
34.....	24	23	5821.....	6	2
35.....	17	16	5825.....	9	8
Number unknown.....	2	2	5826.....	2	2
36.....	14	12	5828.....	25	25
37.....	12	12	5832.....	2	2
38.....	15	13	5834.....	14	12
39.....	25	24	5810.....	5	5
40.....	33	30	5811.....	10	10
41.....	7	7	5812.....	8	8
189.....	15	12	5813.....	7	6
559.....	16	15	5814.....	8	3
560.....	71	66	5815.....	27	22
561.....	23	21	5816.....	20	19
562.....	42	41	5817.....	2	1
563.....	21	19	5818.....	17	17
564.....	25	23	Williams x Brandywine.....	669	595
565.....	20	17	Williams x Parson's.....	12	12
566.....	12	8	Williams x Sulphur.....	9	9
567.....	9	9	Williams x Joe.....	196	188
569.....	9	8	Williams selfed.....	196	171
571.....	51	47	Joe x Williams.....	466	440

Owing to the absence of the Hybridist on military duty during the early part of 1916, very little hybridizing work was done with strawberries that year. A number of plants of Williams, Joe, and Brandywine were self-fertilized, but owing

to the persistent wet weather of June the fruit which was protected by a muslin covered box, moulded instead of ripening properly. Seed was gathered and planted, but to date none has grown, and it is not likely that any will since strawberry seed usually germinates immediately.

The breeding for 1917 was carried on largely with the best of the selections from the 1913 breeding, crossing several of them with standard varieties as shown in the following table:

TABLE XX.—STRAWBERRY BREEDING, 1917.

Cross	Parents of Hybrids' Crossed	No. Pollinations	No. Fruit Set	No. Fruit Gathered
2208 x.....	Williams x E. Ozark.....	78	50	17
1563.....	Dunlap x E. Ozark.....			
1563 x Joe.....	Dunlap x E. Ozark.....	79	61	27
2093 x.....	Williams x E. Ozark.....			
2209.....	Williams x E. Ozark.....	95	73	27
482 x Williams.....	Williams x Brandywine.....	68	14	2
Williams x 482.....	Williams x Brandywine.....	131	45	3
812 x Brandywine.....	Brandywine x Williams.....	27	10	3
1344 x Dunlap.....	Dunlap x E. Ozark.....	59	30	9
1467 x E. Ozark.....	Dunlap x E. Ozark.....	63	14	3
1744 x Joe.....	Dunlap x Williams.....	105	80	44
2594 x Williams.....	Williams x Dunlap.....	88	32	18
2641 selfed.....	Ozark x Williams.....			3
3688 x Brandywine.....	Bubach x Brandywine.....	65	47	20
3390 x E. Ozark.....	Bubach x E. Ozark.....	99	10	9
4496 x Dunlap.....	Sample x Dunlap.....	68	33	7
5715 x.....	Joe x St. L. Prize.....	91	74	55
419.....	Williams x Brandywine.....			
4496 x E. Ozark.....	Sample x Dunlap.....	168	28	25
2209 x.....	Williams x E. Ozark.....	41	25	9
2093.....	Williams x E. Ozark.....			
Brandywine x Williams ..	.....	24	9	3

The low percentage of fruit set in some cases is partly due to a lack of pollen. For a long time after the work was begun it was difficult in many cases to obtain pollen partly from a lack of flowers, but mostly because the anthers refused to shed any pollen. Brandywine for a long time although having an abundance of flowers had very few anthers and these dried up instead of shedding their pollen. Early Ozark also at first bore very few anthers, but later these conditions improved in all and with it a marked increase in the setting of the fruit was noticed.

The unsettled weather at the time of pollination also hindered a good set as we were not able to pollinate the flowers as often as we should have. Emasculating, however, was done regularly.

The difference between the number set and the number gathered is due to damping off caused by the excessive rain during the fruiting season.

As soon as the fruit ripened it was mashed up in sand and when all was gathered the seeds were planted in cold frames where we have a very good germination of healthy plants.

Owing to the very unsatisfactory weather conditions experienced during the strawberry fruiting season of 1917 it was impossible to do any descriptive work at all on any of the breeding plots. The best commercial berries tasted poor, so that nothing of the quality of the fruit in the blocks of 1914 and 1915 breeding could be ascertained. It was decided to leave that work until 1918, but as the plants were getting old, and, as previously stated, the site was unsuitable, runners were

very carefully selected from each plant and moved under the irrigation to develop further roots. From here they will be transferred to the new property which is much more favorable for strawberry growing.

TOMATOES.

YIELD OF CROSS-BRED VS. OPEN-FERTILIZED SEED: An experiment in the comparison of yields of cross-bred tomato plants with plants obtained from open-fertilized seeds, is under way. Results for one season were reported on in 1915. Further crosses were made in 1915 to carry on the work for another year, but unfortunately, the plants in 1916 were put on a very heavy soil so that it was finally deemed unwise to attempt to make comparisons of yields. However, the same crosses were made again in 1916 and seeds obtained to carry on the work during 1917.

As will be noticed in all cases the yields are very low, but as the season was very late the first picking was not until Sept. 9th. The yield per acre is based on the yield of fruit which ripened, not on the whole, as the green fruit is waste.

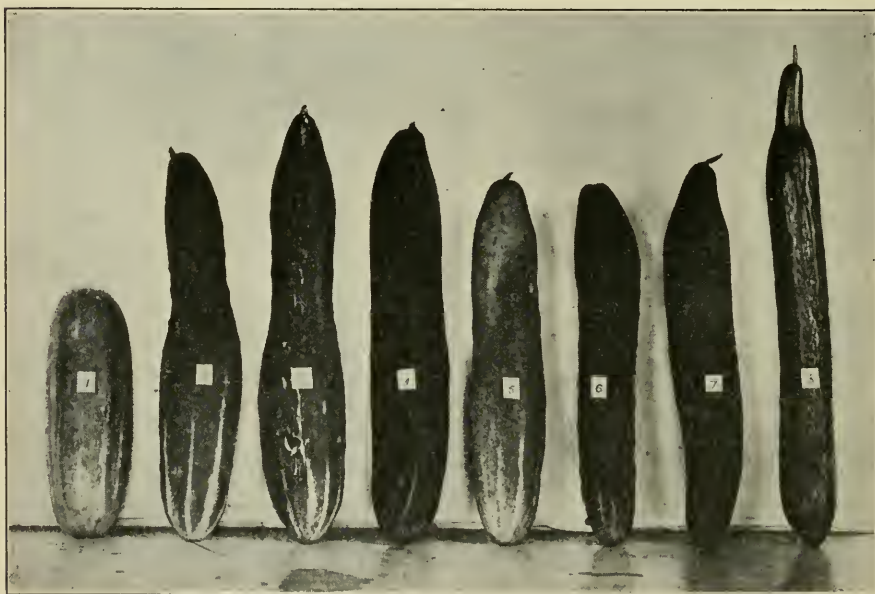
The plants were set 4 ft. x 4 ft. or approximately 2,700 plants per acre. The results were as follows:

TABLE XXI.—YIELD OF CROSS-BRED VS. OPEN-FERTILIZED SEED.

Cross	No. Plants in plot	Total good fruit in lbs.	Green fruit in lbs.	Total yield	Yield per acre in bus.	Ave. for F ₁
Royal Red x open pollinated	28	72.5	68.5	141	116.1	143.2
Royal Red selfed	22	19.5	32.25	51.7	39.86	
Royal Red x Livingstone Stone	26	50.7	180	230.7	87.75	
Royal Red x Chalk Jewel	24	20.25	59	79.2	27.80	
Royal Red x Earliana	24	167.75	92.5	260.2	314.1	
Chalk Jewel open pollinated	23	107	58.75	165.7	209.25	327.02
Chalk Jewel selfed	25	125.75	125	250.7	226.35	
Chalk Jewel x Ponderosa	22	117.25	87.5	204.7	239.4	
Chalk Jewel x Earliana	26	324	27.75	351.7	576	
Chalk Jewel x Royal Red	25	89.25	121.25	210.5	160.65	
Chalk Jewel x Livingstone Stone	26	185	89.25	273.2	319.83	265.74
Chalk Jewel x Bruce's	24	181.25	88.5	269.7	339.25	
Livingstone Stone open pollinated	22	63.25	92.25	155.5	129.15	
Livingstone Stone selfed	24	119	56	175	222.75	
Livingstone Stone x Bruce's	25	161	58.25	219.5	289.66	
Livingstone Stone x Earliana	24	206.75	28.25	234	387.45	283.04
Livingstone Stone x Royal Red	26	62.5	182.25	244.7	108	
Livingstone Stone x Ponderosa	27	135	210	345	225	
Livingstone Stone x Chalk Jewel	20	141.75	28.5	170.2	318.6	
Bruce's open pollinated	25	80	41.75	121.7	144	
Bruce's x Chalk Jewel	6	48.75	15	63.7	365.4	283.04
Bruce's x Earliana	23	172.75	16.25	189	337.95	
Bruce's x Royal Red	9	39.5	20	59.5	197.1	
Bruce's x Livingstone Stone	23	181.5	93.25	211.7	231.7	
Ponderosa open pollinated	21	66.5	63	129.5	142.2	
Ponderosa selfed	18	75	64.5	139.5	187.2	188.82
Ponderosa x Chalk Jewel	24	98.75	31.25	130	184.95	
Ponderosa x Bruce's	20	92	28.5	120.5	207	
Ponderosa x Royal Red	27	66.75	62.5	129.2	111.15	
Ponderosa x Livingstone Stone	25	110	58.25	168.2	198	
Ponderosa x Earliana	22	119	29.25	148.2	243	330.03
Earliana open pollinated	24	131.75	10	141.7	246.6	
Earliana x Livingstone Stone	24	182.75	12	194.7	342.45	
Earliana x Ponderosa	18	119.25	15.75	135	297.9	
Earliana x Chalk Jewel	22	125.75	12.5	138.2	256.9	
Earliana x Bruce's	29	258	9.5	267.5	400.05	330.03
Earliana x Royal Red	22	173.5	59.5	233	352.8	



Trying to secure a cucumber of the White Spine Type that will set fruit without fertilization.



Crossing Telegraph and Early White Spine Cucumbers.

TOMATO X SOLANUM BALBISII: During the past four seasons a considerable amount of work has been carried on in an attempt to cross tomato with *Solanum balbisii*. As many as eight or ten thousand plants were examined individually and carefully in 1916 for any evidence of these two plants being crossed, but none whatever was found. These plants were supposedly the third filial generation of the cross. We have found in this work that a small percentage of tomatoes will set fruit and develop to marketable size without fertilization, as they have been obtained without seeds in them. They may have been induced to develop by stimulation effected with the *Solanum balbisii* pollen. Other tomato fruits have developed with a few seeds only, and it is from these seeds that the plants have been grown for two or three generations. The development of these seeds shows clearly two things: either that some few tomato seeds are developed parthenogenetically or else they were due to tomato pollen being accidentally applied to the pistil during the crossing operations which seems the most liable to have occurred under our out-door methods. This work was re-started each year as well as the successive generations being carried along from the seeds obtained during the first year's work, but now the whole experiment has been discontinued.

Incidentally, while making observations on the plants used in the tomato x *Solanum balbisii* crossing work, a number of plants were found which produced fruit with a reduced number of seeds. Seed from each selected plant was grown separately and the fruit examined for reduction in seed numbers, but all were as well filled out in this respect as ordinary tomatoes.

CUCUMBERS.

The first crossing was done in 1915 with the object in view of securing a White Spine type of cucumber that will set its fruit without fertilization. The following number of plants were secured from the crosses made that year:

TABLE XXII.—CUCUMBER BREEDING, 1915

—	No. Seeds Sown	' Germination
Telegraph x Early White Spine.....	31	19
Early White Spine x Telegraph.....	210	176
Fordhook Famous x Telegraph.....	112	106

There were a large number of undeveloped seeds which were also sown but none germinated.

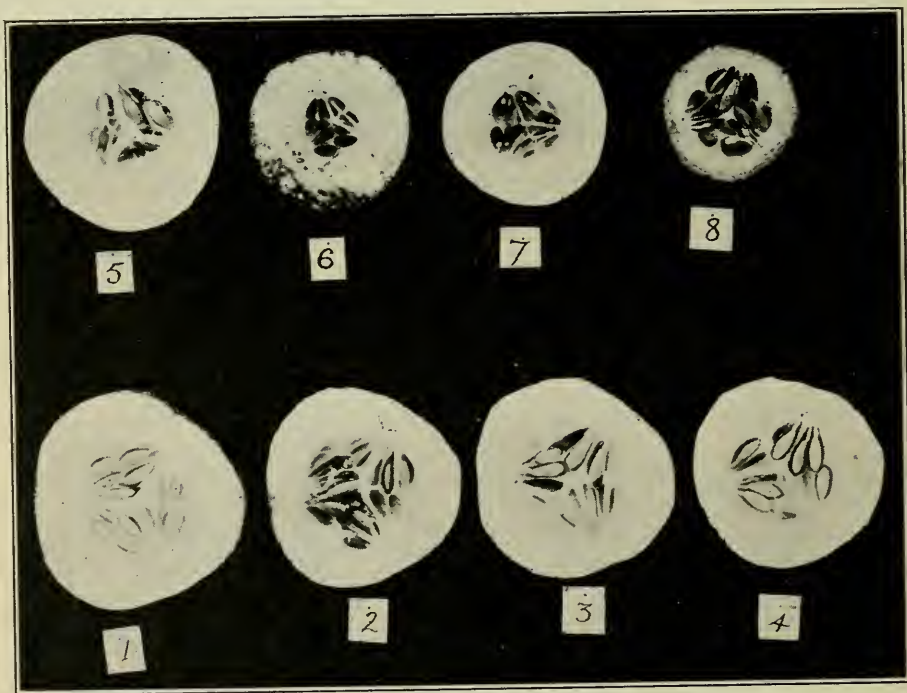
Four of these plants were selected at random and grown in the greenhouse; the remainder were transplanted to the field. Ten flowers on each plant were covered with a paper sack to test the plant's ability to set fruit without fertilization. Most of the plants set no fruit at all from these flowers, but a few set one and some two. That means a few set 20 per cent. of their fruits without fertilization; but it was later proven that the pure White Spine varieties would also set a similar percentage without fertilization.

All of these plants were of intermediate type between the two varieties crossed with one exception, which was a dwarf plant. The plant appeared the same as all the others with the exception that the internodes were very short. An attempt was made to self-fertilize one or two of its blossoms, but failed. The same plant matured three fruits, open fertilized, but they contained no viable seeds.

The illustration on page 38 shows the parents, one on either end, and fruits selected at random from the F_1 plants. A description of the illustration is here given:

1. Early White Spine.
2. F_1 Telegraph x Early White Spine, grown in greenhouse.
3. F_1 Early White Spine x Telegraph, grown in greenhouse.
4. F_1 Early White Spine x Telegraph, grown outside.
5. F_1 Telegraph x Early White Spine, grown outside.
6. F_1 Telegraph x Early White Spine, set parthenogenetically.
7. F_1 Early White Spine x Telegraph, set parthenogenetically.
8. Telegraph.

It will be noted here that the F_1 fruits are all intermediate in type and it may be further noted that the two fruits which were developed parthenogenetically are not so highly developed laterally as the others were which later contained matured seeds.



Crossing White Spine and Telegraph Cucumbers.

Above is a photograph of the same eight fruits in cross section and the description is the same as for the previous illustration. It will be noted here also that these fruits are all intermediate in type. The two fruits that set parthenogenetically, have a seed cavity with no seeds, while the others have many seeds and as large a seed cavity as the Early White Spine itself.

The plants within the greenhouse were given the same treatment as those in the field, that is: ten flowers on each plant were covered to set fruit parthenogenetically, but none set. Five flowers on each plant were also self-fertilized with the result that considerable seed was secured for growing the F_2 generation.

During 1917 the F_2 generation of these crosses was grown, but the results were a decided disappointment owing to climatic conditions. The young plants at

the start had a hard struggle against the rains and were kept very late. As soon as possible bags were put over the female flowers to see if they would set without pollination. We hoped to get ten sacks on each plant, but as we neglected to do any pruning of the vines the supply of flowers became exhausted. Before more had developed a severe attack of Cucurbit wilt cleaned off the most of the patch. We next turned our attention, not to getting parthenogenetic results, but to self some of the most promising ones for seed. Several days were spent in this work but no fruit resulted. Open pollinated fruit, however, from some of the best plants left was secured and the seeds taken for another year, which we hope will be more favorable.

SOLANUM NIGRUM.

SOLANUM NIGRUM—STUBBLEBERRY OR BLACK NIGHTSHADE: Fruit black, globular and about the size of a sour cherry (when grown under cultivation).

This plant is found growing wild on newly broken land in Ontario and in the stubble fields of the North-West, from where it gets its name of "stubbleberry." The plant is an annual and the seeds may be started within the greenhouse the same as tomatoes and transplanted out later or may be planted directly in the field in the spring. The fruit ripens in August and September and does not shell off the plant when ripe but will hang on in a ripened condition for a long time.



Stubble Berry.

The fruit may be used in the fresh state for pie making, etc., or may be made into preserves. It is not poisonous although the botanians make a note that it is said to be poisonous.

PLANT IMMIGRANTS.

The Bureau of Plant Industry, Washington, D.C., issues a monthly list of all plant immigrants to the United States, and through the courtesy of that Department we have received a number of plants and seeds. Application is made at the time the monthly list comes to hand and we receive the plants and seeds requested as they become available for distribution.

Following is a brief and summary report of all plants and seeds received to date with the exception of grapes which are reported separately:

- | | | | |
|----------|---------|-------------------------------------|---|
| 5 plants | 34515 | <i>Amygdalus davidiana</i> | received April 14th, 1914. All succumbed to transplanting. |
| 2 | " 35891 | <i>Castanea sp.</i> | received April 14th, 1914. All succumbed to transplanting. |
| 5 | " 35093 | <i>Buddleia invea</i> | received April 14th, 1914. Four succumbed to transplanting. One grew and afterwards died. |
| 225 | " 36664 | <i>Amygdalus davidiana</i> | received April 3rd, 1915. They make good and rapid growth and would indicate being good stocks for some kind of work. Most of these have been destroyed but a few are retained to fruit and for budding purposes. Grows well on either heavy or light soil. |
| 1 | " 34684 | <i>Amygdalus persica nectarina</i> | received February 16th, 1915. Succumbed to transplanting. |
| 1 | " 35288 | <i>Corylus mandshurica</i> | received February 16th, 1915. Plant is small and slow and poor in growth. |
| 1 | " 21989 | <i>Amygdalus persica</i> | received April 3rd, 1915. Strong, vigorous grower. To all appearances, the same as our ordinary peaches. |
| 1 | " 24915 | <i>Amygdalus persica</i> | received April 3rd, 1915. Two plants succumbed to transplanting and the other is small and has made very little growth. |
| 3 | " 36666 | <i>Castanea mollissima</i> | received April 3rd, 1915. Two plants succumbed to transplanting and the other is small and has made very little growth. |
| 1 | " 37006 | <i>Prunus armeniaca</i> | received April 3rd, 1915. Plant is small and has made very little growth. |
| 1 | " 36111 | <i>Prunus tomentosa</i> | received April 3rd, 1915. Making good, vigorous growth. |
| 2 | " 36086 | <i>Prunus tomentosa</i> | received April 3rd, 1915. Making good, vigorous growth. |
| 2 | " 36271 | <i>Solanum aculeatissimum</i> | received April 3rd, 1915. Did not fruit in 1915 and succumbed to frost in the fall. |
| 2 | " 36934 | <i>Cyphomandra betacea</i> | received April 3rd, 1915. Did not fruit with us. |
| 1 | " 40904 | <i>Rubus canadensis</i> | received November, 1915. Succumbed to transplanting. |
| 1 | " 37463 | <i>Prunus cerisifera divaricata</i> | received April, 1916. Succumbed to transplanting. |
| 1 | " 37559 | <i>Amygdalus pendunculata</i> | received April, 1915. Succumbed to transplanting. |
| 1 | " 32670 | <i>Prunus spinosa x domestica</i> | received April, 1916. Succumbed to transplanting. |
| 2 | " 34601 | <i>Prunus mira</i> | received April, 1916. Succumbed to transplanting. |
| 1 | " 22471 | <i>Corylus avellana</i> | received April, 1916. Just held its own against an adverse season. |
| 1 | " 36662 | <i>Juglans regia sinensis</i> | received April, 1916. Just held its own against an adverse season. |
| 1 | " 26250 | <i>Prunus conradinae</i> | received April, 1916. Just held its own against an adverse season. |
| 1 | " 22468 | <i>Corylus avellana</i> | received April, 1916. Just held its own against an adverse season. |
| 1 | " 21982 | <i>Pyrus betulaefolia</i> | received April, 1916. Succumbed to transplanting. |

- | | | | | |
|---|--------|-------|--|--|
| 1 | Plants | 28489 | <i>Malus baccata</i> x <i>sylvestris</i> | received April, 1917. |
| 1 | " | 43443 | <i>Pyrus chinensis</i> x <i>communis</i> | received April, 1917. |
| 1 | " | 40698 | <i>Euonymus nanus</i> | received April, 1917. |
| 2 | " | 40581 | <i>Euonymus radicans acutus</i> | received April, 1917. |
| 2 | " | 40595 | <i>Rubus irenaeus</i> | received April, 1917. |
| | Seed | 39724 | <i>Brassica pekinensis</i> , | Chinese lettuce, received January, 1916. |

This lettuce which is really a cruciferae resembles the ordinary lettuce in habit and growth. The seed was started early inside and transplanted sometime early in June. Considerable growth was made and no heads of any account were formed. The tender leaves were very desirable as early green vegetable, quality being very good. Seed stocks were produced almost immediately and a large quantity of seed was produced. A small quantity of this seed was started later in the season and then transplanted outside for fall growth.

Seed 27,988	<i>Cucumis melo</i>	} Melons received January, 1916.
28,965	" "	
29,237	" "	
30,471	" "	

These melons did not grow very well, two melons being all that matured, and these were of small size and of only medium quality. A number of seeds have been saved for trial the following season.

Seed 41056 *Alium capa* (Onion), received January, 1916.

A part of this seed was sown in the greenhouse and transplanted out early in the season and produced good size average bulbs, but there was a great variety of colors and shapes from this seed. Another part of the seed was sown later in the season out-doors and produced all thick necks and no bulbs. Some of this seed was saved for trial in 1917.

POMOLOGY.

APPLES.

The work with apples in Sections 2 and 5 has been limited to the identification of the varieties and the taking of notes on blooming dates, amount of bloom, date of ripening fruit, date of picking and the yield of each tree of the different varieties under test. Some replanting has been found necessary and nursery stock was ordered to fill these vacancies in the spring of 1917. A considerable number of new varieties are also being added.

LIME-SULPHUR VS. SOLUBLE SULPHUR FOR SCAB CONTROL: This experiment was continued as outlined in the 1915 report. In addition, an attempt was made to measure the amount of foliage injury from the two sprays. In 1915, the injury was not severe enough to be measured though the trees sprayed with lime-sulphur had a more thrifty appearance due to the color of the leaves. In 1916, however, the spray injury to the leaves from soluble sulphur was 32.76 per cent. and from the lime sulphur, 11.76 per cent. This, of course, does not represent the amount of leaf *surface* injured by the spray, but is simply a comparison of the leaves in any way injured by the spray. In most cases this would amount only to a slight burning. The percentages were arrived at by making four separate observations, the total number of leaves on four representative branches on different sides of each tree being determined. The number injured by spray was counted separately and the percentage determined from an average of these four observations.

THINNING EXPERIMENT: The experiment in thinning, as outlined in the 1915 report, was again carried on in 1916, but has since been discontinued. As in 1915, the 1916 crop was only medium in quantity and, therefore, little difference could be observed between the thinned and unthinned trees. In 1917 there was no fruit whatever. A thinning experiment is a very difficult experiment to handle since to show marked results from thinning the trees must be so heavily loaded that they are incapable of maturing their fruit to a good marketable size. Suppose we have two trees each capable of bearing at its best ten barrels of apples, and each of which sets only sufficient fruit to bear that quantity. If we thin one-third of the fruit off one tree and none off the other, the final result in weight of fruit would be the same, as the fruit on the thinned tree would simply grow larger than on the unthinned tree, but would not bulk up any more than the maximum load—ten barrels of apples. Of course the thinned apples will be of somewhat better size and color due to their being spaced, but apart from that the experiment would prove of little value (since both thinned and unthinned trees have produced the same quantity of marketable fruit) *unless* some effect on future crops could be observed on the thinned trees. As to the value of thinning overloaded trees there is little doubt, but the difficulty in experimental work is to secure trees that will overbear fairly regularly—not once in four or five years.

CULTIVATION AND PRUNING EXPERIMENT: This experiment was outlined fully in the 1915 report. So far, notes taken have been limited to:

- | | |
|------------------------------------|-----------------------------------|
| 1. The diameter of the trees. | 4. The date of first fruit. |
| 2. The blooming dates. | 5. The number and weight of fruit |
| 3. The number of blossom clusters. | harvested. |

In addition to these points it is planned to make the following observations in future seasons:

- | | |
|----------------------------------|------------------------------|
| 1. Length of annual twig growth. | 4. Blemishes of fruit. |
| 2. Size of leaves. | 5. Keeping quality of fruit. |
| 3. Color of fruit. | |

While to take these notes on every tree in the experiment may be too big an undertaking, it will be possible to make them for one or two varieties right across the six cultivation blocks. This should give ample evidence on which to draw conclusions.

In 1916 photographs of trees in the different blocks were taken to show any differences in vigor. These are on file in the office of the Experiment Station.

At present, since results are more apparent, the pruning experiment is attracting more attention than that on the different cultural methods. A complete outline of this experiment is given in the 1915 report, page 44. A summary of the number of blossom clusters and trees under test conveys clearly the present comparative value of the different methods of pruning for fruit production. Attention is called to the fact, however, that the winter pruning has been more severe



Row of winter pruned trees on left, summer pruned trees on right.

than is usually practiced, the aim having been to provide a strong framework for future crops without regard for early bearing. If possible, a pruning experiment which will include light and medium dormant pruning is to be started shortly.

TABLE XXIII.—AVERAGE NUMBER OF BLOSSOM CLUSTERS PER TREE FOR THE YEAR 1916.

Variety	Unpruned		Winter Pruned		Summer Pruned	
	No. of Trees	Ave. No. per Tree	No. of Trees	Ave. No. per Tree	No. of Trees	Ave. No. per Tree
Hyslop	12	434.25	12	7.75	10	290.3
McIntosh	6	4.16	6	0	5	1.4
Jonathan	6	506.5	6	16	5	331.6
Cranberry	6	32.66	6	0	5	100.2
Hubbardston.....	6	276.0	6	1.16	5	139.8
King	6	62.16	6	0	5	13.4
Baldwin	6	52.5	6	0	5	11.5
Greening	6	152.16	6	1.5	5	112.6
Spy	6	0.33	6	0	5	0
Ontario.....	32	80.906	36	8.88	34	30.68
Wealthy	32	131.31	36	5.22	34	102.205
Wagener.....	32	264.31	36	4	34	138.94
Duchess.....	32	189.5	36	3.61	34	59.38
Dudley	21	593.04	24	3.54	23	266.304

Table XXIV is a summary of the weight and count of fruit from the different systems of pruning and also from each block in the cultivation experiment:

TABLE XXIV.—SUMMARY OF FRUIT PRODUCED IN 1916 ON TREES IN,

	No. of Trees	Total Wgt. of Fruit	Total No. of Fruits	Ave. Wgt. of Individual Fruits
A.—Pruning Expt.				
* Unpruned.....	207	3260.2	14,416	.2261 lbs.
* Winter Pruned.....	228	226.95	781	.2905 lbs.
Summer Pruned.....	209	1819.9	7,169	.2538 lbs.
B.—Cultivation Expt.				
Summer Fallow.....	95	660.95	2,910	.2267 lbs.
Cover Crop in June.....	114	947.95	4,232	.2239 lbs.
Cover Crop in July.....	114	882.30	3,513	.2511 lbs.
Four year Rotation.....	113	1328.6	5,528	.2403 lbs.
Four year Rotation plus manure.....	113	1399.2	5,896	.2374 lbs.
Sod Mulch.....	95	89.6	287	.3121 lbs.

NOTE.—In 1917, the crop was practically a total failure, hence it is not included in the above tables.



Row of summer pruned trees on left, unpruned trees on right.

The summary as regards the average weight of individual fruits does not accurately represent the results, since practically no Hyslop crabs were produced on Block 6, thus making the average size of the apples from this block larger than those from the other blocks. When results from future seasons' work are available, tables will be worked out separately for each variety in the experiment.

As will be readily seen from a careful study of Tables XXIII and XXIV the results to date are very uniform throughout. The early bearing varieties of the summer pruned and unpruned trees were loaded with fine, marketable fruit both in 1915 and 1916, while the winter pruned trees, with one or two exceptions, have borne practically no fruit. (As previously noted no attention was given to early bearing in the winter pruned trees.) In 1915 the winter pruned trees bore no

fruit, the summer pruned trees 127.7 lbs., and the unpruned trees, 209.4 lbs. There appears to be no doubt that summer pruning will bring the young orchard into profitable bearing much quicker than the plan usually recommended of heading back severely each year. The unpruned trees, of course, have given similar results, but due to lack of pruning the trees are not in as good condition for future bearing. They are more straggly and have too many branches which criss-cross through the tree, thus not allowing of as free a circulation of air or as much sunlight as is desirable for the control of insect pests and diseases, and the production of the best quality of fruit. Experimental work at the Woburn Experimental Fruit Farm, England, and at various stations in the United States has demonstrated, however, that *light* dormant pruning will probably allow apple trees to bear as early and heavily as summer pruning or no pruning. In our own experiment it is natural to suppose that when the winter pruned trees have been trained to the desired framework, and the annual pruning gradually reduced, this method of pruning will show up relatively better than it has done thus far.



Six-year-old Greening, summer pruned.



Six-year-old Greening, unpruned.

TABLE XXV.—PER CENT. INCREASE IN DIAMETER OF TRUNK FROM 1914 TO 1917.

	Winter Pruned	Summer Pruned	Unpruned
Hyslop	91.61	95.44	102.22
McIntosh	124.85	128.16	157.53
Jonathan	87.92	119.82	135.11
Cranberry	86.68	95.63	106.75
Hubbardston	92.36	101.42	108
King	100.79	137.7	111.75
Baldwin	114.75	118.74	123.66
R. I. Greening	101.84	142.71	139.68
Spy	86.46	102.53	105.71
Ontario	97.05	123.27	132.64
Wealthy	100.45	121.64	125.87
Wagener	98.16	110.84	109.94
Duchess	95.79	136.85	119.02
Dudley	103.22	109.54	118.76

A study of the figures in the above table shows that without exception the summer pruned and unpruned trees have outgrown the winter pruned trees. Between the summer pruned and unpruned trees the difference is not so marked, the difference generally being in favor of the unpruned trees. The difference in the average diameters of the trunks in the three systems of pruning is, of course, correlated with differences in the general size and vigor of the tree. The inference is that though heavy dormant pruning of young trees may stimulate new growth yet this new growth does not equal the amount of wood cut off plus what new growth would naturally have been made. Hence the feeding surface of the tree is reduced and thus the general size of the tree, as indicated by the trunk diameter.

CHERRIES.

The work with cherries has been limited to the identification of the varieties and the usual records of blooming dates, amount of bloom, date of ripening, date of picking and the amount of fruit for each tree. As this block is strictly for variety study purposes the number of trees of any one variety has been reduced to three. Formerly there were up to twenty or more trees of some varieties, but as they were scattered throughout the orchard no experimental work could be outlined for them. The extra number were useless and they have therefore been removed and are being replaced with new varieties thought worthy of testing.

The soil of Section 6 is apparently an excellent, sandy loam, but past experience has shown that cherry trees do not thrive in it. The reason for this is not quite clear. It is planned to make a complete soil survey of the Section the coming season, 1918, if time is available.

PEACHES.

Bloom and crop notes are on file. During 1917 peach blooming continued from May 18th to June 9th, while the fruiting season commenced with Mayflower, August 1st, and lasted until Smock were ripe, October 30th. From October 9th repeated frosts occurred which injured and in some cases badly froze such late varieties as Lemon Free, Late Elberta, Smock, Chair's Choice, etc.

An attempt has been made in 1917 to verify the identity of all varieties in the orchard so that we may have only those which, as far as can be ascertained, are true to name. A great many trees were found incorrectly named; the names of others were unknown but all except a few which did not fruit, new plantings, or those which it was thought wiser to leave for another season's evidence, have been either designated on the lists as true to name or if incorrectly named removed from the orchard. It is hoped that by the end of the season of 1918 only trees which have not fruited will remain unverified and these can easily be dealt with as they come into bearing. Many new varieties are being added from year to year.

At the south end of the peach variety orchard eight varieties of apricots and two of nectarines are being tested. The usual notes on the blooming dates, amount of bloom, date of first fruit, dates of picking and the amount of fruit taken at each picking have been recorded for each tree. In 1916 all the varieties ripening their fruit before September 25th were identified, and a few of the varieties described.

PLUM ROOTS FOR PEACHES: The outline of this experiment and the results up to and including 1915 were given in the 1915 report. The value of this experiment has always been considered rather doubtful since no records were kept

other than the yield of the individual trees. Also, in the spring of 1916 it was found necessary to remove six of the twenty-two rows of trees in the orchard to make room for grape seedlings. The remainder of the orchard was removed in the fall of 1916 to make room for hybrid and seedling peaches, apples and pears.

RINGING EXPERIMENT: It has often been observed that a branch of a peach tree partly ringed by canker will ripen its fruit earlier than a healthy, vigorous branch. This fact, along with the knowledge that the ringing of other tree fruits and of grape vines, will hasten the ripening of their fruit led to the following experiment being outlined for ringing peach trees:

Object: To ascertain the value of ringing branches of peach trees to hasten the ripening of their fruit; and also, the time at which this ringing may be most advantageously done.

Procedure: Only those branches to be removed in next year's pruning to be ringed. The ring to be about three-eighths of an inch wide. Five branches to be ringed at each of the following periods:—

1. Two weeks after date of blossoming.
2. Every two weeks until the second week in August.

Conclusions to be drawn from observations on the following points:

1. Date of ripening.
2. Color of fruit.
3. Size of fruit.
4. Susceptibility of fruit to disease.
5. Effect on vigor of the tree.

During the season of 1916 Brigdon trees were used and the experiment conducted as outlined, with the same result in each of the twenty-five branches ringed. The branches gradually lost vigor, the fruit developed little after ringing, and in most cases, gradually dried up. On not one of the twenty-five branches did a single peach mature. Those branches ringed earliest in the summer were dead by September 1st. This result is somewhat discouraging. Perhaps it was due to the fact that too small branches were chosen. Only branches measuring $\frac{1}{2}$ in. to $\frac{3}{4}$ in. in diameter were used.

The experiment was carried on in 1917 as outlined in 1916, except that slightly larger branches, $\frac{3}{4}$ in. to $1\frac{1}{2}$ in., were used instead of $\frac{1}{2}$ in. to $\frac{3}{4}$ in. as in 1916.

From the standpoint of fruit produced alone the ringing of peach branches does not give satisfactory results. Many normal fruits could be had from the same trees ripening practically at the same time, and weighing .5 lbs. and over, much larger, that is, than the ringed fruit. Brown rot was much more prevalent on the fruit of the ringed branches than on normal fruit, and fully 50 per cent. of the former fruit did not develop at all. Most of the ringed branches had died or were dying at the time the fruit was mature, except those branches ringed so late that no effect on the fruit could be expected.

It hardly seems, therefore, judging from the data secured that the ringing of peach branches can offer any advantages, even as a special practice.

PEARS.

Conditions during the seasons of 1916 and 1917 were not favorable for a large yield. Unfavorable weather during blossoming reduced the set of fruit to a much smaller per cent. than usual. Also in 1916 the latter part of the season was unfavorable for ripening the later varieties. Young trees did not mature their crop owing to the extremely dry period during ripening.

To check the pear blight the variety test block was seeded to sweet clover in 1915. This made a heavy growth during the early part of the summer of 1916 and was cut and mulched around the trees. In spite of this, however, the soil became very hard and dry. For 1917 it was planned to cultivate part of the space between the trees leaving each tree in about an eight-foot square of sod, but owing to the extremely wet spring it was impossible to cultivate at all.

To fill up the vacancies caused by pear blight in the past the plan has been adopted to fill such vacancies with dwarf stock unless standard is specifically called for, as in the first twelve rows. Dwarf Duchess and Bartlett were the two varieties selected for this purpose and these trees will be top-worked with the varieties desired for testing.

SPRING AND FALL PLANTING OF PEARS: An experiment in fall vs. spring planting in dynamited and dug holes was started in 1911. The Clapp's Favorite pear was used for this experiment, six trees being planted for each of the systems. The original plantings were made October 27th, 1911, and April 30th, 1912. Similar plantings were made in the fall of 1912 and spring of 1913, and fall of 1913 and spring of 1914. In the fall of 1914 and spring of 1915 Bartlett pears were used for similar tests. For the above experiment every attempt is made to get stock from the same nursery and budded or grafted at the same time.

The results generally are distinctly in favor of fall planting. It remains to be seen, however, whether the spring planted trees will overcome, in part or altogether, the lead that the fall planted trees now have.

SELF-FERTILITY TEST OF PEAR VARIETIES: In the spring of 1917 an experiment was started with the object of ascertaining the percentage of self-fertility of as many varieties of pears as were available. Twenty varieties were included in the 1917 work.

Twenty-five blossom clusters of each variety were covered with paper bags and the necks of the bags fastened with marking tags; another twenty-five clusters were marked with tags to keep track of them but otherwise exposed to normal conditions.

Owing to the adverse weather conditions prevailing throughout the blooming period the set on all varieties, with the exception of Seckel and Chinese Sand Pear, was very poor, in fact with the three varieties not one fruit set on the twenty-five tagged bloom clusters. With Kieffer the stamens matured a little before the pistil was receptive but there was plenty of pollen still available at that time. On all other varieties the anthers burst shortly after the blossoms opened; thus an abundance of pollen was available during the time the pistil was receptive, but no insects were present to work on the flowers. Because of the unusual conditions existing this season it will be necessary to substantiate the work done before any attempt at drawing conclusions can be made. Only two fruits were harvested, one Lawrence and one Tyson, both of which dropped before mature. Descriptions and photographs of the seed will be included in a later report on the work, when other results are available for comparison. Of the eighteen seeds in the two fruits only two were plump and sound.

PLUMS.

The usual notes on blooming dates, amount of bloom, date of ripening fruit, date of picking fruit and the yield were made during the seasons of 1916 and 1917, for each tree of the 130 varieties represented in the block. As with peaches an effort was made to identify as many as possible of the varieties in the orchard. Over 110 varieties were identified as either true to name or otherwise.

FALL VS. SPRING PLANTING IN DYNAMITED AND DUG HOLES: In the south end of the plum orchard, an experiment is being conducted on fall vs. spring planting of trees in dynamited and dug holes. The experiment was outlined in the annual report for 1915 in which report also some preliminary observations on the experiment were made. However, the experiment has not yet been conducted long enough to give conclusive evidence as to which is the better time or method of planting, though as with pears, present indications are strongly in favor of the fall planting. Complete records are being kept from year to year.

MISCELLANEOUS EXPERIMENTS.

FALL VS. SPRING PLOWING OF COVER CROPS: (Apple and Dwarf Duchess Pear Orchard.)

A block of apples containing one row each of eleven trees of the following varieties: Canada Red, Gravenstein, Blenheim, Stark, Fameuse, Duchess, Cayuga, Wolf River, St. Lawrence, Ribston and Astrachan, and interplanted with dwarf Duchess pears is being used for an experiment in fall and spring plowing.

Half of this section is fall plowed and half spring plowed, each half being treated the same year after year. Three cover crops are used: Rye and vetch, oats and clover, and buckwheat. The experiment, therefore, consists of six sections, or three cover crops fall plowed and the same three spring plowed. Study is made each season of the new growth, trunk growth, set of fruit and the crop that ripens in proportion to the blooming. The real questions are, a study of moisture in relation to cover crops, and the effect if any of spring plowing on the June drop.

Moisture determinations are taken three times during the season: First in the spring just before the cover crop is plowed under on the spring plowed block, again in July just previous to sowing the cover crop, and finally just before the fall plowed block is plowed under. The object of these tests is to determine the relative moisture content of the soil under three different cover crops being used, rye and vetch, buckwheat, and oats and clover, and under fall and spring plowing of these cover crops.

Record is also kept of the depth of freezing taken at different intervals during the winter for both plowed and unplowed blocks.

To date no data of value on this experiment is available. The sections are equally good. Of course the fall plowed sections freeze much deeper than the spring plowed. This is due to the greater snow-holding capacity of those blocks which still have a cover crop on them; that is, the blocks which will be plowed under in the spring. Rye and vetch, which made very little growth, froze to almost the same depth spring plowed as fall plowed. Very little difference is to be noted in the freezing depth from the various cover crops fall plowed.

FALL PLANTED TREES: In order to determine the differences, if any, between fall planted trees secured from nurseries at different altitudes, and dug at different dates, one and two-year-old apple, plum and pear trees were secured from different nurseries and set out in Section 7 in the fall of 1915. Unfortunately, no really suitable land was available for this experiment. On the plot chosen the soil is not uniform and the north-east part of the experiment is on low, heavy clay loam; the south half on a medium, light sandy loam soil. As a result of heavy rains early

in the season of 1916, water lay for a period of two weeks about the trees in the north half of the experiment. Because of these unsatisfactory conditions it is impossible to draw any definite conclusion.

GRAPES.

The experiments conducted in the vineyard were, with one exception, continuations of those begun in 1915. Since these experiments were outlined and the method of procedure described in the annual report for 1915, it will simply be necessary here to present results for 1916.



Grape self fertility tests. Left to right, Salem, Agawam and Massasoit. The three upper bunches were self fertilized, the three lower bunches cross-fertilized.

SELF-FERTILITY OF VARIOUS VARIETIES: An experiment was started in the summer of 1915 to determine the average degree of self-fertility of the different varieties of grapes represented in the variety test block. The results as tabulated in Table XXVI give (1) the name of the variety tested, (2) the number of bunches of flowers covered just before they opened, with a half pound manila paper bag, (3) the average degree of self-fertility of the flowers on those bunches, (4) the conditions of the stamens whether upright or recessive. The table includes results for 1915, 1916 and 1917, and the average for the three years. The average may be taken as fairly conclusive.

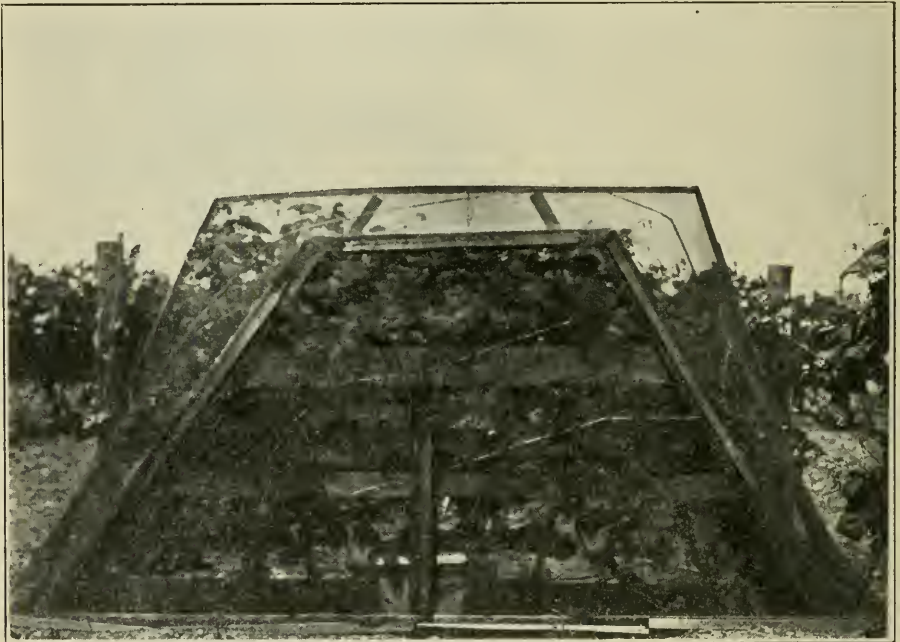
TABLE XXVI.—DEGREE OF SELF-FERTILITY OF VARIOUS VARIETIES OF GRAPES.

Variety	1915		1916		1917		Average	
	No. of Bunches	Ave. % Self-Fertility	No. of Bunches	Ave. % Self-Fertility	No. of Bunches	Ave. % Self-Fertility	Condition of Stamens	Ave. % Self-Fertility in 3 yrs.
Aminia	3	0	10	0	10	0	rec.	0
Agawam.....	10	39	7	44	12	21.5	upr.	34.8
Banner	8	82.5	10	67	12	72.5	"	74
Barry	5	0	10	0	3	0	rec.	0
Brighton.....	7	.7	10	0	14	0	"	.23
Caco	9	73	10	71	11	64.1	upr.	69.4
Campbell.....	5	60	9	58.1	11	54.1	"	57.4
Champion.....	3	20	10	50	12	17.1	"	29
Charlton.....	4	6.25	10	0	4	0	rec.	2
Chasselas avec Royal.	5	100	.....	.....	12	83	upr.	91.5*
Chasselas avec Vibert	4	0	10	0	12	0	rec.	0
Colerain	7	22.8	9	34.4	12	47.9	upr.	35
Concord	10	66	8	51.2	12	52.5	"	56.5
Delaware	10	82	9	89.4	12	56.25	"	75.8
Diamond.....	10	96	10	89	12	80.8	"	85.3
Diana	10	81	10	74	12	79.2	"	78
Duchess	7	85.7	5	85	12	75	"	81.8
Eaton	4	40	6	20.8	12	57.9	"	39.5
Early Ohio.....	10	77	.....	.....	12	34.16	"	55.6*
Eclipse.....	10	0	10	0	.....	.....	rec.	0*
Elvira.....	8	91	8	84.3	12	87.5	upr.	87.6
Green's Early.....	9	90	7	86.4	12	59.6	"	78.6
Hartford	3	76	7	18.4	13	35.4	"	43.2
Herbert	10	0	10	0	12	0	rec.	0
Herman Jaeger.....	4	55	.....	.....	11	58.75	upr.	56.9*
Hayes	8	0	10	0	12	0	rec.	0
Hicks	13	31	9	51.6	12	40.8	upr.	41.1
Iona	7	78.5	5	50	11	38.6	"	55.7
Isabella	5	14	10	17	10	23	"	18
King	8	60	8	25.6	12	62.1	"	49.2
King Philip.....	5	0	10	0	12	0	rec.	0
Lindley.....	10	0	10	0	12	0	"	0
Lucille	2	6.5	9	57.2	12	79.6	upr.	47.4
Lutie	9	78.8	9	72.7	9	16.4	"	55.9
Manito	8	48.7	9	31.4	10	21	"	33.7
Mary.....	7	0	8	0	11	0	rec.	0
Massasoit.....	10	0	9	0	12	0	"	0
Merrimae.....	.....	.....	.....	.....	2	0	"	0*
Moore Early.....	10	57	10	43.1	12	65.4	upr.	55.2
Moyer	9	0	10	0	12	0	rec.	0
McPike	9	68	10	58	12	45.8	upr.	57.3
Niagara.....	20	62	8	54.3	12	10.4	"	42.4
Pense Malaga.....	3	100	10	99.5	4	77.5	"	92.3
Perkins	10	76	8	38.1	.....	.....	"	57*
Pierce	6	51.6	8	16.2	12	30.8	"	32.8
Pocklington.....	8	77.5	9	57.7	11	78.6	"	71.2
Read	9	74.4	5	98	12	72.5	"	81.6
Rogers 24.....	10	0	7	0	9	0	rec.	0
Rogers 36.....	7	0	10	0	4	0	"	0
Salem	10	0	10	0	6	0	"	0
Vergennes	12	58	10	48.6	12	29.2	upr.	45.2
Wilder	10	0	8	0	4	0	rec.	0
Wilkins	7	57	5	30	12	50.8	upr.	45.9
Winchell.....	9	90	7	85.7	12	53.75	"	76.5
Worden	8	75	8	33.7	9	47.8	"	52.1

*Average of less than three years.

VALUE OF CERTAIN SELF-FERTILE VARIETIES AS POLLENIZERS FOR CERTAIN SELF-STERILE VARIETIES: This experiment, started in 1915, is being conducted to determine the value of the following self-fertile varieties of grapes: Campbell, Concord, Niagara, and Worden as pollenizers for the following self-sterile and partly self-fertile varieties: Agawam, Lindley, Massasoit, Brighton, Herbert, Salem and Wilder.

Record is kept of the number of flower clusters pollinated, the final number of flower clusters (some lost by wind, etc.) the average per cent. of fruit set, and the lowest per cent. set. Two years' results, though hardly sufficient on which to base final conclusions, indicate Worden to be by far the best pollenizer of the four, with Campbell second followed by Niagara and Concord, the latter two being practically equal.



The bee as a factor in grape blossom pollination. Tent of mosquito netting covering a grape vine and a hive of bees.

RINGING GRAPE VINES: This experiment was outlined in the annual report for 1915 and results for that year were also given there. The experiment was continued in 1916 and 1917 practically as outlined, with results very similar to those secured in 1915. The work for the three years seems sufficiently conclusive to state that ringing may be best done, considering size of berry and bunch, from three to four weeks after the bloom opens or approximately the last ten days of July.

THE HONEY BEE AS A FACTOR IN THE POLLINATION OF THE GRAPE: A new experiment begun in 1916 was one to determine the value of the honey bee as a factor in the pollination of grape flowers. This experiment was considerably interfered with owing to the fact that the bees would not work while in captivity. Where a vine of the Herbert variety was enclosed with one of the Concord variety

under a tent of mosquito netting and a hive of bees included, the bees simply swarmed in a convenient angle of the tent and refused to work on the blossoms. The result was that no fruit set on the self-sterile Herbert vine. However, in spite of the fact that the bees did not work the experiment was carried out as outlined below:

OUTLINE OF EXPERIMENT.

Row 34, vine 15	Herbert	x	Vine 15, Row 33, Concord	{ To be covered with mosquito netting.
" 34 " 17	"	x	" 17 " 33 "	{ Bees enclosed.
Row 34 " 23	"			{ Covered with mosquito netting.
" 34 " 25	"			{ Bees and syrphid flies excluded.
Row 34 " 2	"			{ Covered with cheesecloth.
" 34 " 25	"			{ All insects excluded.
Row 32 " 17	Concord	x	Vine 17, Row 31, Campbell	{ Covered with mosquito netting.
" 32 " 15	"	x	" 15 " 31 "	{ Bees enclosed.
Row 32 " 22	"			{ Covered with cheesecloth to exclude all insect ts.
" 32 " 23	"			

The tents of mosquito netting and those of cheesecloth constructed over the vines were of sufficient size to more than allow for the full normal development of the shoots during the period they were covered.

To ascertain the part wind plays in the pollination of grape flowers, microscope slides smeared with vaseline and fixed in sheets of paper were exposed just outside the mosquito netting covering those vines selected for the experiment. These slides were examined once daily.

A hive containing a small colony of bees and a few frames of honey was placed under each of the four mosquito netting tents and conditions made to approximate normal as far as possible.

SPRAYING EXPERIMENT: Owing to the high price of copper sulphate it was thought advisable to test the value of ferrous sulphate as a possible substitute for the much more expensive copper sulphate. At first, there was some doubt as to the fungicidal value of ferrous sulphate solution since iron belongs to a different group of elements than copper. But on the possibility of ferrous sulphate solution having a fungicidal value and not being harmful to plants when used with lime, it was decided to try it out. Mr. Joseph Culp, of Vineland, very kindly placed his vineyard at our disposal for this experiment.

The experiment was outlined so as to determine the comparative fungicidal value of (1) ferrous sulphate, (2) a mixture of equal parts ferrous sulphate and copper sulphate, and (3) copper sulphate spray (Bordeaux mixture). The vineyard used in this experiment consisted of six rows of sixty-nine mature Concord vines each.

The various sprays were applied at three intervals: (1) Just before the blossoms opened, (2) a week after the flowers had fallen, (3) two weeks after the second spray.

No burning or injury could be observed from the first two sprays. After the third spray some injury was found on the leaves and fruit of the vines sprayed with ferrous sulphate. Spots on the leaves and fruit where drops of spray had collected and evaporated were burned somewhat. There was much less burning and injury to the fruit in the case of the ferrous sulphate and copper sulphate mixed than in the case of the ferrous sulphate alone, and none at all in the case of copper sulphate.

OBSERVATIONS ON THE EFFECTIVENESS OF VARIOUS SPRAYS USED.

FERROUS SULPHATE: Stem of clusters mildewed badly, some, in fact, so much so that they had shrivelled giving the bunch a wilted appearance. Berries slightly below normal size and a few mildewed slightly. Mildew not sufficient though to spoil the sale of the grapes; they would still pass as No. 1's.

COPPER SULPHATE AND FERROUS SULPHATE: Stems of clusters mildewed badly. In some cases mildew was so bad that the berries on some of the smaller clusters did not color fully and some dropped. Berries smaller than those in the row sprayed with copper sulphate.

COPPER SULPHATE: Stem of clusters mildewed slightly but still green and mildew not sufficient to have prevented the berries from reaching full normal size. Berries not affected.

CHECK: Stem of clusters mildewed badly, so much so that they have turned brown and begun to shrivel. Berries slightly mildewed. Mildew was sufficient to have prevented the berries from reaching full normal size. Berries on some of the smaller bunches not colored fully and many had dropped because of mildew.

CURRANTS AND GOOSEBERRIES.

The block devoted to the bush fruits includes sixteen of the leading varieties of black currants, fifteen red currants, two white currants and thirty-three gooseberries. During the summer of 1916 complete descriptive blanks were drawn up for both currants and gooseberries and each of the sixty-six varieties represented has been described for both fruit and bush characters. In addition to this, records have been kept for each bush on the blooming dates, amount of bloom, date of first fruit, date of picking and amount of fruit picked.

An attempt was made to conduct storage tests with the different varieties of red currants and gooseberries, but the cold storage is so unsuitable for such work that the tests were failures. Mold developed on the berries a few days after they were put in the storage.

Both currants and gooseberries were severely attacked by saw-fly larvæ early in the 1916 season. To check this the bushes were sprayed with arsenate of lead, 3 lbs. to 40 gallons of water, on June 1st. Again on June 12th the gooseberries were sprayed with Bordeaux mixture, 4:4:40 to control the mildew.

Observations in 1916 and 1917, together with the records of previous years, point to the fact that certain new varieties of black currants, little grown commercially, are heavier yielders and possess certain characters such as uniformity in ripening, earliness (in the case of the Eclipse) and ease in picking, which should recommend them to the grower commercially. These promising varieties are: Eclipse, Kerry, Climax, and the better known one, Saunders.

RASPBERRIES.

EXPERIMENT TO DETERMINE THE VALUE OF IRRIGATION: This experiment was started in 1915 using the three varieties: Herbert, Cuthbert and Marlboro. In that year the results were negative, no increase in yield being noted over the non-irrigated block. Where the soil was kept moist and the bushes somewhat wet from the irrigation and rain, the fruit proved to be soft and much of it was unfit

for shipment. In 1916 more definite results were obtained as shown in the following table:

TABLE XXVII.—IRRIGATION OF RASPBERRIES.

	Color of Canes		Length of Canes in feet		Diam. of Canes in inches		Yield in Qts. per acre	
	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet
Marlboro ..	Bronze Yellow.	Yellow-Green ..	4' 4"	5' 1"	.37	.43	1,869.4	2,459.9
Cuthbert ..	Red	Whitish	5' 2"	6' 2"	.37	.5	2,023.7	5,016.8
Herbert ...	Dull Purple	Greenish White..	5'	5' 6"	.37	.43	2,898.9	4,414.0
	Bronze							

Remarks: Eight per cent. of Cuthbert canes bent over in irrigated block against four per cent. in non-irrigated.

A quite marked increase in yield from the use of irrigation would naturally be expected in a season such as 1916 since the weather was very dry during the picking season. The increased yields from the irrigated section might therefore be said to be due to the *decreased* yields on the non-irrigated section from the effects of drought.

STRAWBERRIES.

The work on strawberries is a continuation of the variety testing (including test of irrigation) and description work started in 1914. Eighty-three varieties were tested in 1916, forty-five of these being in the old patch bearing a second crop, and which did not bear as well comparatively as the varieties in a younger plantation. This younger patch consisted of new seedlings from the Central Experimental Farm, Ottawa, some other new varieties and a few common and improved varieties not included in the old patch.

This new patch, set early in the spring of 1916, included all of the better varieties of the old patch as well as the promising ones of the younger patch previously mentioned, so that it was expected the yields for 1917 would furnish a fair comparative test of the merits of the various varieties. The yields, recorded previously to this, cannot be taken as a fair test since the plantations were of different ages and in addition, soil, etc., varied to some extent in different parts of the plantations. Unfortunately the weather conditions were such that no reliable records could be secured from the 1917 crop.

In addition to the testing work, descriptions and notes were taken as to earliness, blooming dates and hardiness. The blossoms were described as to whether they were perfect or imperfect and other remarks made where necessary. A number of varieties were tested at the Station factory for jam making purposes. These are reported on in the by-products report.

CLASSIFICATION OF VARIETIES AS TO BLOOMING SEASON: In the Station plantation in 1916 the following varieties of strawberries bloomed between May 12th and 15th, and may, therefore, be classed as *Early Bloomers*: Americus, August Luther, Bederwood, Brandywine, Clark's Seedling, Crescent, Excelsior, Haverland, Longfellow, Magoon, Michael's Early, Molena, St. Louis' Prize, Senator Dunlap, Superb, Texas, Thompson's Seedling, Warfield.

MID-SEASON BLOOMERS: MAY 19TH-24TH: Cassandra, Clyde, Commonwealth, Cordelia, Doran, Downing's Bride, Early Ozark, Enormous, Helen Davis, Highland, Jessie, Jocunda, Julia, Kellogg's Prize, King Edward, Lovett, Mariana, Marshall, New York, Parson's Beauty, Pocomoke, Ruby, Sample, Sharpless, Splendid, Staples, Steven's Late, Tennessee Prolific, Wm. Belt, Woolverton, Valeria, Virginia.

LATE BLOOMERS, MAY 26TH-29TH: Aroma, Bubach, Buster, Cardinal, Chesapeake, Desdemona, Enhance, Fendall, Gandy, Goodall, Highland Beauty, Heritage, Island King, Jerome, Joe, Klondyke, Lady Thompson, Lettie, Ohio Boy, Ophelia, Orem, Portia, Queen Mary, Three W's.

STORAGE TEST OF STRAWBERRIES: No adequate storage tests could be made with the Station cold storage, but some of the more important commercial varieties were sent to the cold storage plant at Grimsby and tested there.

From notes made there it would seem that much depends on the condition of the berries before cooling takes place. With the four varieties reported on the least waste was recorded with slow cooling to 40 degrees F. They were kept at this temperature for four days. A lower temperature of 32 degrees F. for the same time caused slightly greater loss, also a higher temperature of 60 degrees or 65 degrees F. for two days gave considerable more waste. Thirty-five to 37 degrees F. would seem to be the best temperature for storage and if the berries are not too mature they will hold for at least four days at this temperature. However, to make the greatest use of cold storage the storage should be close enough at hand so that the berries may be placed in it very shortly after picking.

SPRAYS TO KILL CHICKWEED: In the spring of 1916 an experiment was outlined to determine the value from the application of different salt solutions in destroying chickweed in strawberry plantations. The following salt solutions were used on different plots:

TABLE XXVIII.—OUTLINE OF CHICKWEED SPRAYING EXPERIMENTS.

Plot	Salt	Dilution with water		Plot	Salt	Dilution with water	
		lbs.	gals.			lbs.	gals.
1	Ferrous Sulphate	5	40	9	Ferrous Sulphate.....	20	40
2	Sodium Chloride	1	1	10	Calcium Chloride.....	2	1
3	" "	3	1	11	" "	4	1
4	Calcium Arsenite	1	40	12	Ferrous Sulphate	1	1
5	Ferrous Sulphate.....	10	40	13	" "	4	40
6	Calcium Chloride.....	3	1	14	" "	3	40
7	Sodium Chloride	2	1	15	Sodium Arsenite.....	$\frac{3}{4}$	40
8	Check .....	.....	.....			.....	.....

These solutions were applied at the rate of .0555 gals. per square foot or 1 gal. to a row 12 ft. long and $1\frac{1}{2}$ ft. wide. Mr. Norman Moyer very kindly allowed us the use of a portion of his strawberry patch for this experiment. All applications of spray were made by the same man using a knapsack sprayer.

After the first application the use of the following sprays, sodium chloride (3 lbs. to 1 gal. water), calcium chloride (3 lbs. to 1 gal. water), sodium chloride (2 lbs. to 1 gal. water), calcium chloride (2 lbs. to 1 gal. water), was discontinued because of their markedly injurious effect on the foliage and even the roots of the strawberry plants. None of the solutions used controlled chickweed satisfactorily without injuring the strawberry plants to such an extent that practically no fruit

was produced. This fact makes spring spraying of strawberry plants with the solutions given in Table XXVIII impracticable. Spraying shortly after the fruit has been harvested and until fall frost kills the weeds may, however, prove more satisfactory. An endeavor will be made to carry out such an experiment another season. Up to the present it has been impossible to continue the work owing to scarcity of help.

PROPAGATION EXPERIMENT: An experiment to determine the relative value of strains of berries of the same variety producing a large number of runners and those producing relatively a very small number of runners was started in 1914. The Williams variety is being used in this work. To date no information of value is available.

STRAWBERRY PLANTS DISTRIBUTED: A number of plants of a few of our best varieties were sent out to a few growers, also a large selection of varieties was sent to the Monteith Demonstration Farm and to the new Plant Breeding Station at Fort William.

VEGETABLE GARDENING.

The work on asparagus is a continuation of the experiments started in 1914 and 1915, and which were outlined in the 1915 annual report. Variety tests of nine varieties and selections are being carried on; irrigation tests and yield of male *vs.* female plants.

In 1917 seed of a specially selected strain named Washington was received from the Bureau of Plant Industry, United States Department of Agriculture. This strain is supposed to be rust resistant and very productive. The young plants



Overhead irrigation of vegetable crops at the Experiment Station.

made excellent growth and looked much thriftier and remained green longer than plants from seed which we saved from the Giant Argenteuil variety.

YIELD OF MALE VS. FEMALE PLANTS: This experiment has been discontinued in view of the fact that even if marked differences were observed in the yield such results would be of little practical value as the number of male or female plants in a plot is not controlled and is at all times a variable character. In 1916, the last season for which records were made in this experiment, the female plants slightly outyielded the male plants. The average yield per plant per cutting season for the male plants was .040 pounds and for the female, .0411 pounds. In point of numbers female plants appear to outnumber the male plants about two to one.

IRRIGATION EXPERIMENT: The irrigated plot outyielded the non-irrigated by 656 lbs. in 1916. The amount of water required to secure this increase was ten acre inches applied the previous season (1915). At a cost of \$3.50 per acre inch, this makes the total cost for irrigation \$36. It perhaps ought to be explained that the increased vigor and growth resulting from regular applications of

water during the summer shows itself in an increased yield the following spring. In 1917 the irrigated plot outyielded the non-irrigated by 850 lbs. per acre. The average yield per plant for 1917 was .404 lbs. for irrigated and .273 lbs. for non-irrigated. This increase was obtained by the application of 8.5 inches of water the previous season.

BEETS.

IRRIGATION AND FERTILIZER EXPERIMENT: The irrigation experiment on early beets was continued during 1916 with the addition of sodium nitrate applications. The plots for this experiment were sown on May 1st and made a good growth during the season. By July 25th the greater part of the roots had reached marketable size. All plots were, therefore, lifted and records made.

Table XXIX records the yields per acre in bushels for the roots and pounds per acre for the leaves. Ratio of roots to leaves by weight is also given and the gain in roots and leaves of the various treated plots over the non-irrigated, non-fertilized plots.

TABLE XXIX.—IRRIGATION AND FERTILIZER EXPERIMENT WITH EARLY BEETS.

(Yields are in bu. per acre of roots and lbs. per acre of leaves.)

—	Roots bu.	Leaves lbs.	Ratio of Roots to Leaves by weight	Gain over Plot 1
No. 1. Non-irrigated, non-fertilized plot	71	5,930	1-1.6	
No. 2. Non-irrigated, fertilized plot	211	11,144	1-1.13	In roots, 140 bu. per acre. In leaves, 5,214 lbs. per acre.
No. 3. Irrigated, non-fertilized plot	111	10,032	1-1.80	In roots, 40 bu. per acre. In leaves, 4,102 lbs. per acre.
No. 4. Irrigated, fertilized plot.	248	18,868	1-1.52	In roots, 177 bu. per acre. In leaves, 12,938 lbs. per acre

A close study of this table would lead to the conclusion that the determining factor in increased yield of early beets is not so much irrigation as the frequent applications of nitrate of soda, for whether irrigated or not the fertilized plots far outyielded the non-fertilized plots. This fact is most forcibly expressed in plots 2 and 3. Plot 3, irrigated but non-fertilized, yielded 111 bushels per acre, while plot 2, non-irrigated, but treated with frequent applications of nitrate of soda, yielded 211 bushels per acre, or an increase of nearly 100 per cent. Comparing again the weight of leaves for these two plots and the ratio of roots to leaves by weight, it will be seen that the irrigated, non-fertilized plot produced much greater weight of leaves in proportion to the amount of roots produced than did the non-irrigated, fertilized plot. In other words the irrigation has tended to an excess of leaf production while fertilization has had the reverse effect, an increase in root yield. The total amount of water applied to the irrigated sections amounted to 2.9 inches (calculated per acre) at a cost of \$10.44.

The total amount of nitrate applied was 800 lbs. per acre put on in five applications costing in all \$26.80 per acre. Table XXIX shows an increase of 140 bushels per acre for fertilization alone (compare plots 1 and 2). This increase of 140 bushels was secured at a cost of \$26.80.

Irrigation alone gave an increase of 40 bushels per acre (compare plots 1 and 3). This increase was secured at a cost of \$10.44 as calculated above.

CARROTS.

Similar work to that with beets has been carried on with early carrots. Results for 1916 are shown in table XXX.*

TABLE XXX.—IRRIGATION AND FERTILIZER EXPERIMENT WITH EARLY CARROTS.
(Yields are in bu. per acre of roots and lbs. per acre of leaves.)

—	Roots bu.	Leaves lbs.	Ratio of Roots to Leaves by weight	Gain over Plot 1
No. 1. Non-irrigated, non-fertilized plot.....	117.7	7,050	1-1.2	
No. 2. Non-irrigated, fertilized plot.....	160	6,758	1-1.12	In roots 42.3 bu. per acre. Loss in leaves 292 lbs. per ac.
No. 3. Irrigated, non-fertilized plot.....	190	8,884	1- .9	In roots, 72.3 bu. per acre. In leaves, 1,794 lbs. per acre.
No. 4. Irrigated, fertilized plot	135.6	7,629	1-1.1	In roots, 17.9 bu. per acre. In leaves, 579 lbs. per acre.

The results with carrots as shown in this table were considerably different than those secured with early beets. In the beet experiment nitrate of soda gave by far the largest returns for the outlay on the crop. With the carrots, however, there is a light gain for nitrate alone but the largest gain is made from the irrigation alone. This indicates that with early carrots water is the determining factor. Further tests, however, must be made before definite conclusions can be drawn. Unfortunately, the work in 1917 was rendered negative by poor seed and an unsuitable site which was often under water during excessive rains.

In percentage of leaves to roots the nitrate for both beets and carrots decreased the amount of leaves to roots in all but one case, while irrigation increased the amount of leaves to roots in all but one case.

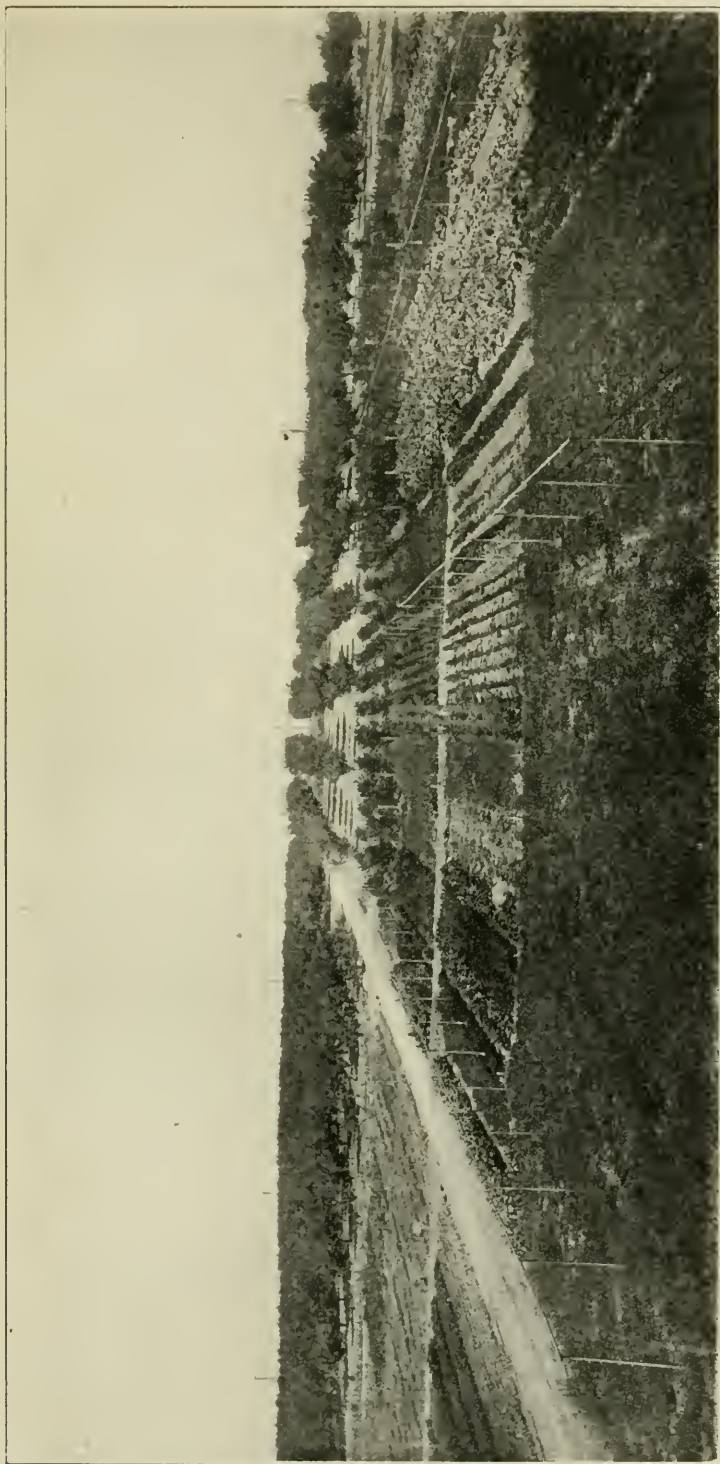
CELERY.

Similar work to that already outlined for beets and carrots was carried on in 1915 and 1916 with celery, using Giant Pascal and Paris Golden varieties. Table XXXI sums up the results for 1916.

TABLE XXXI.—IRRIGATION AND FERTILIZER EXPERIMENT WITH CELERY.

Plot	Treatment	Heads	Lbs.	Weight per head	Calculated Yield per acre
Paris Golden:					
No. 1.....	Irrigation and Nitrate.....	28	15	.54	10,800
No. 2.....	Irrigation, no Nitrate.....	39	18	.46	9,200
No. 3.....	Non-Irrigated and Nitrate ...	21	11	.52	10,400
No. 4.....	Non-Irrigated, no Nitrate....	21	8	.38	7,600
Giant Pascal:					
No. 1.....	Irrigation with Nitrate.....	76	50	.66	13,200
No. 2.....	Irrigation, no Nitrate.....	80	49	.51	10,200
No. 3.....	Non-Irrigated and Nitrate...	45	28	.62	12,400
No. 4.....	Non-Irrigated, no Nitrate....	45	18.5	.41	8,200

*A fuller account of this experiment was published in the Fruit Branch Circular for November, 1916.



Partial view of irrigated section. Cherry and peach orchards beyond.

The celery, on the whole, was quite short, while the quality was very good. The yields were taken by weight per head, being closely trimmed and prepared for market. The results were uniform for both varieties, nitrate alone giving the largest increase in yield for the money expended. The addition of irrigation to the application of nitrate gave a further increase of only 400 lbs. for Paris Golden and 800 lbs. for Giant Pascal.

Irrigation amounted to 8.1 inches per acre costing \$29.16. Nitrate used amounted to 605 lbs. per acre, costing \$16.25.

In 1917 a similar experiment was carried on using White Plume variety. Results were more marked than in 1916 as the following table indicates:

TABLE XXXII.—IRRIGATION AND FERTILIZER EXPERIMENT WITH WHITE PLUME CELERY.

Plot	Treatment	Heads	Total lbs.	Weight per head	Calculated yield per acre
No. 1	Irrigation and Nitrate	42	43	1.02	51,000 lbs.
No. 2	Irrigation and no Nitrate.....	42	41	.97	48,500 "
No. 3	Non-Irrigated and Nitrate....	42	23	.54	27,000 "
No. 4	Non-Irrigated, no Nitrate....	42	21	.5	25,000 "

In this experiment irrigation was the most important factor. While the nitrate made gains in both plots it was more noticeable when used in conjunction with the irrigation.

CORN.

Selection work in corn was started in 1914. At the present time five varieties of sweet corn are being grown, and a large number of selections of these have been made. Most of the selection work has been done with the Early Malcolm, the original strain of which was secured from the Central Experimental Farm, Ottawa. In 1916 the selections of Early Malcolm were practically one week in advance of Bantam. The work in 1917 was a failure owing to adverse weather conditions. 1916 seed, however, is still available to continue the work in 1918.

ONIONS.

IRRIGATION EXPERIMENT: Work similar to that carried on with beets and carrots was outlined for onions. The non-irrigated, non-fertilized plot yielded at the rate of 400 bushels per acre. The irrigated plot, 477.9 bushels, and irrigation with nitrate, 508.2 bushels per acre. No figures are available on the effect of nitrate alone. From the foregoing figures it will be seen that irrigation alone increased the yield 77.9 bushels and irrigation with nitrate increased the yield 108.2 bushels per acre over the untreated plot.

The quality of the onions, as a whole, was excellent, but the irrigated bulbs were not well matured and consequently were of poor keeping quality.

The cost of irrigating was \$31.37 per acre.

SEED SELECTION: The seed selection work started in 1915 is being continued and extended. Specially good strains of Denia and Prizetaker have been developed.

Considerable success also has attended the work of starting onion plants in the greenhouse early in February and transplanting to the field early in May. Four varieties, Prizetaker, Denia, Red Globe and Red Wethersfield have been treated in this way, the first two giving considerably the best results.

POTATOES.

The selection work started in 1915 was continued during 1916 and 1917. In 1916 there were 56 selections of the variety Gertrude; 39 selections of Davies' Warrior, 57 of Carmen No. 3, and 5 of Delaware. This number has now been reduced to 114 and includes the variety Sir Walter Raleigh in addition to the above.

NORTHERN VS. SOUTHERN GROWN POTATOES AS SEED TUBERS: With a view to determine the relative productivity of Northern immature seed tubers in comparison with ordinary seed tubers produced in the Southern part of the Province, the following experiment was started in 1916.

Seed tubers (of the Early Eureka variety), secured from Kenora, Dryden, Monteith and Port Hope, were cut and planted on May 1st as follows:

- Rows 1 and 2. Mature seed from Kenora.
- Rows 3 and 4. Immature seed from Dryden.
- Rows 5 and 6. Immature seed from Monteith.
- Rows 7 to 10. Mature seed from Port Hope.



Carrots in bloom.

The experiment was conducted in duplicate. The soil was a rather heavy clay loam. The whole plot was sprayed three times during the season with Bordeaux and arsenate of lead.

In 1916 the Northern grown seed matured approximately a week earlier than the Southern seed, but none of the tubers were dug until July 31st, when the best sixty hills in each plot were selected and carefully weighed, giving the following results:

- Mature seed from Kenora, 60 hills, 74.8 lbs.
- Immature seed from Dryden, 60 hills, 87.4 lbs.
- Immature seed from Monteith, 60 hills, 68.6 lbs.
- Mature seed from Port Hope, 60 hills, 44.1 lbs.

The immature seed from Dryden was grown for only one year in the North, and the seed from Monteith for two years.

The unfavorable weather in 1917 rendered the results for that year very unreliable, hence they are not given here. In general, however, they bore out the 1916 results.

TOMATOES.

The seed selection work, as fully outlined in the 1915 report, is being continued. Several new varieties were added in 1916 making in all some 135 selections of over 30 varieties for that year. This number has now been reduced to 128 and includes also several strains received from C. E. F., Ottawa, and R. M. Palmer, B.C.

VEGETABLE SEED PRODUCTION.

The work on the production of selected vegetable seed was continued during 1916 and 1917 with good success and especially so in the latter year. The original stock of Yellow Globe Danvers and Denia onions, Detroit Dark Red beets and Chantenay carrots is being used for this work with the addition of the following kinds and varieties of vegetables:

Cabbage: Danish Ballhead.
Celery: Giant Pascal and Paris Golden.
Cauliflower: Dwarf Erfurt.
Onions: Red Globe, Red Wethersfield and Prizetaker.
Parsnips: Hollow Crown:
Radish: Three varieties.
Salsify:

The seed produced in 1915 was used for most of our 1916 crops with the addition of a few others for comparison. Also a considerable amount of seed was sent out free in small lots to a large number of growers who reported on this seed at the end of the season. Some forty reports were received in 1916 and without exception all speak very highly of the quality of the seed, the germination in most cases being 20 per cent. or better than other seed. Carrots in a few cases proved to be low in germinating power.

In 1917 seed of the following vegetables was distributed to 76 individuals: onions, beets, carrots, parsnips, salsify, cabbage, celery and cauliflower. All reports were again very favorable.

Very fair success attended the production in 1916 of cabbage seed of the Danish Ballhead variety. A number of selected heads were placed in a bed with the root stock attached in the fall of 1915. A light covering of earth and snow was all the protection given. The heads came out in good condition in the spring and only a very small number failed to grow after being set in the row. Many of the heads required cutting or slitting to allow the seed stocks to burst through. Later in the season the tops required to be supported with stakes and strings. Seed ripened in late August and was harvested by making several cuttings.

Celery seed was produced with most success by planting the plants in the greenhouse from the field during the late fall. They began to grow in early spring and produced a large quantity of seed by the end of July. A number of plants were stored over winter in a trench, and some which lived over in cellar storage were planted out in the open in the early spring. A fair quantity of seed was produced but the growth of the plants and the seed produced was not as good as obtained under the first system outlined above.

Cauliflower seed was produced from plants which had just started to head in late fall and which were taken up from the field at that time and planted in a cool greenhouse over winter. The plants were left in the greenhouse and in early spring seed stocks were sent up from which ripened seed was secured in July.

An attempt to produce cauliflower seed outside from early plants resulted in failure owing to the weather being backward at the time of blossoming and setting seed.



Celery seed production. A celery plant in full bloom.

The object of this work in vegetable seed production is, of course, to demonstrate the possibilities in home grown seed and the best methods of raising such seed, as well as to secure better strains through seed selection.

VEGETABLE SEED SELECTIONS RECEIVED: The following selections were received and grown in 1917:

From Central Experimental Farm, Ottawa:

Corn: Early Malcolm, Early Otta.

Tomatoes: Alacrity, 1917, Burbank's Early 0.7495, Earliball 0.7464, Danish Export, 0.7463 M., Sunnybrooke Earliana 0.7453, Danish Export, 0.7462.

Citron: 0.5586 B.

Onion: Yellow Globe Danvers, C. E. F. 5464 XX.

Carrot: Chantenay, C. E. F. 5461-2.
Radish: Scarlet Turnip, White Tip, C. E. F. 5465.
Spinach: Victoria, C. E. F. 5466.
Parsnips: Hollow Crown, C. E. F. 5467.
Beet: Detroit Dark Red, C. E. F. 5452-1.
Lettuce: Grand Rapids, C. E. F. 5472-1.
Celery: Perle le Grand, C. E. F. 5463, French Success 1—C. E. F. 5448.

From R. M. Palmer, British Columbia. Selected strains of:

Russian Sun Flower.
 Hubbard Squash.
 Cabbage Lettuce.
 Long Cream Vegetable Marrow.
 Swiss Chard.
 Long French Golden Carrot.
 Sutton's Early Red, Burpee's Whole Salad Tomatoes.

From Chas. Young, Richard's Landing, Ont. Selected strains of:

Student Parsnip:
 White Cory and Golden Bantam Corn.
 Danish Ballhead and Winningstadt Cabbage.
 Detroit Beet.
 Red Globe Onion.

IRRIGATION.

Considerable use was made of the irrigation system during the latter part of the 1916 and 1917 growing seasons. A new line of pipe was laid from the pump to the packing house so as to make possible the shutting off of the farm water system during irrigation. By this means no dirty water is pumped into farm mains, and the irrigating mains leading direct to the nozzles give a good steady pressure for irrigating at all times.

The system was used with success on many crops including beets, carrots, cabbage, cauliflower, asparagus, onions, celery, raspberries and the old bed of strawberries. Below is given a table showing some of the crops which were irrigated in 1916, and the amount applied in inches for each month.

TABLE XXXIII.—IRRIGATING DURING SEASON OF 1916.

—	Raspberries	Strawberries	Onions	Asparagus	Beets	Carrots	Celery
July.....	5	4.3	4.2	4.2	4	4	3.1
August.....	1.8	.....	1.1	.9	.....	.....	2.8
September.....	2.6	.....	3.4	3.4	.....	.....	2.2
Total	9.4	4.3	8.7	8.5	4	4	8.1

The rainfall per month for the six months, May to October, 1916, inclusive, is given below for purposes of comparison with the above table:

May, 1916.....	4.93"	August, 1916.....	.6
June ".....	4.67"	September ".....	1.33
July ".....	1.12"	October ".....	3.62

As will be seen the rainfall was very light during the three months, July, August and September, when the irrigation was given.

In 1917 it was not found necessary to use the irrigating system to such a large extent as in 1916 owing to the wet weather continuing so late in the season.

BY-PRODUCTS.

The following is the chief work being carried on by the By-Products Department:—

1. Variety tests of fruits for canning and jam making.
2. Investigation of maturing of grapes in the Niagara Peninsula.
3. Canning and jam making for Canadian Military Hospitals overseas.

STRAWBERRIES FOR JAM MAKING.

The rise in popularity of strawberry jam and the increasing quantity of strawberries used for that purpose has warranted a study of the product from several points of view. Growers and jam makers alike have wondered what varieties would give best results, first as yielders, second, as shippers, and third, as the finished article in the factory.



Side view of canning factory: Engine room, a receiving platform and motor truck.

In the summer of 1916 twenty varieties were made into jam separately. Each variety was given similar conditions except where noted in the data which follow. The proportions used in these jams were:—

Fruit	11 lbs.
Pectin	1 "
Sugar	15½ "

The fruit was placed in the kettle and brought to a boil. Then the pectin was mixed thoroughly with the hot fruit. Lastly, the sugar was added. The mixture was then allowed to boil vigorously until the boiling point had reached 220 deg. F.

The hot jam was cooled in granite dish pans, until it reached 185 deg. F. Sample bottles of each jam were filled and the data and variety written upon the labels.

In judging the finished product the following points were noted:—

- (1) Wholeness of the berry.
- (2) Color of jam.

(3) Transparency of the fruit depending on the degree to which the sugar had permeated it.

(4) Flavor.

(5) Mould growth.

The following gives a description of each variety:—

Highland Beauty: Color, clear, deep red; fruit badly broken.

Glen Mary: Similar to No. 1, but not as deep nor as bright.

Chesapeake: Color, dull; fruit, partly broken and opaque; mould easily; flavor, fair; rather a poor jam.

Sharpless: Color, bright; fruit, partly broken and rather opaque, slight mould; flavor, good; fairly good jam.

Senator Dunlap: Color, very dark; fruit, bright but broken; no mould; flavor very poor; a very poor jam.



Scalding peaches to remove skins.

Desdemona: Color, very dark; fruit, rather broken but clear; slight mould; flavor rather poor; not very good.

Early Ozark: Color, fairly bright; fruit, tends to break; slight mould; flavor, very poor; a poor jam.

Excelsior: Color, a very dark, clear red; fruit, whole, a pleasing jam though rather dark.

Cordelia: Same as Early Ozark. (Cannot draw any definite conclusions from these two as the jams seem to have been made from bad pectin.)

Wm. Belt: Color, very good; fruit, bright and whole, no mould; flavor, very good; an excellent jam.

Pocomoke: Color, good; fruit, clear and whole, no mould; flavor very good; a very good jam.

Joe: Color, good; dark red; fruit, clear, partly broken; slight mould; flavor, good; a good jam.

Enhance: Color, bright red; fruit, whole and very transparent; the most attractive jam of all.

Parson's Beauty: Not properly made; fruit whole; probably a good berry.

Sample: Similar to Pocomoke in appearance and whole fruit: not quite as good in flavor; a good jam.

Williams: Color, dark; fruit, whole but dull in color.

Brandywine: Color, dark; fruit, whole and clear; flavor, fairly good; a fairly good jam.

Island King: Color, dark; fruit, whole and clear; flavor, fairly good; a fairly good jam.

Klondyke: Color, dark and clear; fruit, whole and bright; flavor good; would make a fairly good jam.

Superb: Color, dark; fruit, whole and bright; flavor good; would make a fairly good jam.

The results of the strawberry tests have not been conclusive. The number of varieties was limited and conditions were not as uniform as desirable. The work, however, will be continued more thoroughly.

Owing to the exceptional strawberry season it was impossible to obtain suitable samples in 1917 for continuing the jam making tests made in 1916.

In the case of cherries, black currants, red currants and gooseberries many varieties were obtainable and hence a study has been commenced of these fruits for canning qualities. In this set of tests all fruits were canned in glass. After having prepared the fruit by washing, it was placed in clean jars, covered with a sugar syrup containing 50 per cent. by weight of granulated sugar and cooked at 212 deg. F. Cherries, currants and gooseberries were cooked 20 minutes. Raspberries were cooked for 5 minutes.

CHERRIES.

Fouche Morello: Fruit and syrup very deep red, fruit being scarcely visible in syrup; flavor probably poor but impaired because of slight fermentation; fruit has held form well.

Double Natte: Color of fruit and syrup ideal, being of a deep, dark red, somewhat lighter than *Fouche Morello*; flavor slightly sweet.

Ostheim: Color too dark; flavor very acid; fruit small.

Leib: Color same as *Double Natte*; flavor pleasing, sweet but with some acidity; fruit firm.

Weir: Lightest in color of varieties so far; fruit shows light through the syrup; flavor acid and bitter; fruit soft.

Dyehouse: Medium red color, fruit being rather light in color: flavor excellent, sweet with acidity; fruit very small.

Late Duke: Lightest of medium red varieties, too light: samples fermented, spoiling flavor.

Richmond: Color slightly darker than *Late Duke*: flavor acid and bitter: fruit soft.

Montmorency: One of the best medium red varieties: flavor almost as acid as *Richmond*.

Ontario Preserving: Darkest and best color of medium red varieties: flavor poor, acid and bitter.

Windsor: Light pink color: very sweet and lacking in acidity: fruit firm.

Ida: White color, all samples badly fermented.

Summary: The variety Leib because of its superior color and flavor must be placed first. Dyehouse, though a small fruit, stands second because of its excellent flavor. This experiment should be continued. A greater number of varieties and more representative samples would give more conclusive results.

BLACK CURRANTS.

The varieties Magnus, Boskoop Giant, Baldwin, Black Victoria and Black Naples were tested.

There was practically no difference in color.

Black Naples had the most pleasant flavor, being quite sweet. The texture of the fruit was fine and soft.

Boskoop Giant was almost as good but a little coarse in texture.

Magnus, Baldwin and Black Victoria were all too bitter in flavor.

All samples were lighter in color and less sweet in flavor than currants packed in enamel lined tin cans.

RED RASPBERRIES.

Cuthbert: Was found superior to Herbert and Marlboro, a bright, rich red.

Herbert: Was almost as good as Cuthbert in color and just as good in flavor, sweet but not insipid.

Marlboro: Was light in color and flat in flavor.

RED AND WHITE CURRANTS.

Fay Prolific: Sweetest and most pleasing flavor; color almost as bright a red as Victoria Red.

Victoria Red: Flavor rather bitter, finest color, deep clear red.

Versailles: Flavor bitter and color no better than Fay Prolific.

Wilder: Poorest flavor and color.

White Grape: The only white variety; flavor fair.

Ruby Castle: Badly fermented.

GOOSEBERRIES.

Of the twenty-three varieties of gooseberries tested four were especially good canners. The variety Leader had the best combination of qualities, being light green in color, medium in size, sweet flavor, tender and free from prickles.

Josselyn had the finest flavor of any variety but was too small. It ranked second.

Champagne Red was good in every respect except color. Red color at present cannot be recommended for canning.

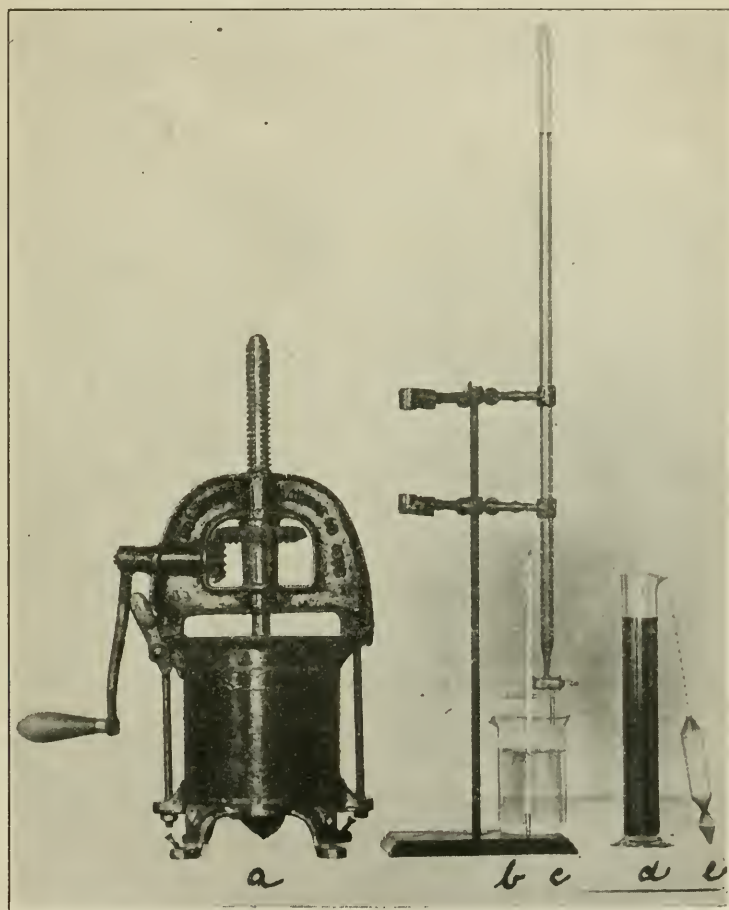
Crown Bob had to be placed fourth on account of a sour flavor. Otherwise it was as good as Leader. Twenty-three other varieties were tested. Only the best varieties are, however, mentioned in this report.

MATURING OF GRAPES IN THE NIAGARA PENINSULA.

Most fruit growers have realized that the maturing of grapes depends more upon the nature of the soil than any other one factor. In some districts the vigor of the foliage has been lessened by attacks of fungus diseases. Although

such attacks have interfered with the development of sugar in the fruit, just as frost or severe summer pruning will also act, yet the number of grapes so influenced is small compared to the grapes affected simply by differences of soil.

The result has been that grapes have been marketed at various stages of maturity. Growers have been influenced by the high prices being obtained for the first fruit on the market. But if a grower on one soil is able to market his grapes on a certain day it does not follow that a grower on a different soil should market his fruit on the same day.



Apparatus used in grape test-work.

Accordingly, during the summer of 1916, a preliminary study of grape growing in the Niagara Peninsula was made. It was found that in all districts growers were willing and anxious to supply us with samples which we might test for sugar and acidity. Apparently it is becoming well understood that the marketing of immature grapes is a serious matter. For dessert purposes unripe grapes are worthless and it does not take many such grapes to shake the confidence of the consumer.

Following is a list of the districts visited together with the type of soil from which samples of grapes were secured:--

District	Soil	District	Soil
Burlington.....	Gravel	Beamsville	Clay
Jordan	Sand	Vinemount.....	Clay
Vineland	Sand loam	Stamford	Clay loam
Port Dalhousie.....	Sand loam	Experiment Station ..	Clay
Fonthill	Sand	St. Catharines	Clay
St. David's.....	Mountain wash.....	Homer.....	Black Muck.....
Winona	Mountain wash.....		

An attempt was made to obtain from each of these districts the following varieties: Concord, Delaware, Niagara, Brighton, Worden, Wilder, Moore Early, Campbell Early, Champion, Diamond, Agawam, Lindley and Vergennes. The varieties Herbert, Moyer, Hartford, Pocklington, Isabella, Lutie and Lucille were collected occasionally.

The plan was to visit all of the districts within two days. By repeating visits as often as possible (not more than a week elapsing) it was felt that the maturity of all varieties could be traced and that the development on the various soils might be fairly compared. Unfortunately, it was not always possible to follow this plan entirely and hence the results obtained are not as conclusive as they might be.

METHODS OF TESTING: Each sample as collected was placed in a 20 lb. paper bag upon which was written the date, variety, name of grower, district, soil and marketability. A sample weighing about 2 lbs. was found to be sufficient. On page 73 is shown most of the apparatus used in making the laboratory tests.

The grapes were first crushed in a granite dish and then placed in the press marked "a." Enough juice had to be collected to fill the glass cylinder "d" within an inch of the top. The size of "d" is important. It should be one and one-half inches in diameter and twelve inches in height. This is the smallest size which will enable one to float the spindle (saccharometer or hydrometer) "e" within it. The spindle "e" is graduated in degrees Balling or Brix. That is, the reading it gives is approximately the percentage of sugar by weight contained in the grape juice. The temperature of the juice is then taken and any necessary correction in the reading made.

Having thus obtained an approximation of the sugar content of the grape juice (by a simple method which might easily be duplicated by any grower or inspector) the sample is then tested to find the percentage of free acid, expressed in terms of tartaric acid.

RESULTS: In spite of the incompleteness of the 1916 results a great deal of instructive and accurate information was procured.

In 1917 it was possible after the experiences of 1916 to carry on the work more efficiently than in 1916.

The visits to the various vineyards were completed within two days. Thus the tests were fair to all districts. Visits were repeated regularly each week.

By obtaining samples of each variety regularly at different periods in its ripening it was possible to follow closely the development of the grape. When

cutting the sample we endeavored to decide whether the fruit came under any of the following categories:—

- (a) Dead ripe.
- (b) Ripe.
- (c) Edible.
- (d) Non-edible.
- (e) Edible but frosted.
- (f) Non-edible and frosted.

The results obtained in 1917 have tended to confirm the conclusions drawn from the work of 1916. Grapes grown on the heaviest soils have matured quicker than those grown on the lighter soils. This was particularly noticeable during the 1917 season. All grapes were later. None developed as high a Brix-acid ratio (see explanation later) as in 1916. But only those on heavier soils were really fit for marketing when the early frosts came.



Basket of cans, filled, exhausted, sealed and ready for cooking retort.

It should be noted that increased elevation has tended to overcome soil. Thus Vinemount clay, unlike most other clay soils, has produced a slow maturing grape. The muck soil of Homer has again produced the leading quality grape.

In classifying the samples of grapes at the time of cutting greatest importance was placed upon the decision—whether a grape was edible or non-edible. This is the vital question in marketing grapes. The table which follows has been derived from detailed tables by averaging the figures for composition when the grape was *first* classified as “edible.” In some cases samples from the same vineyard continued to be classed as merely “edible” for two or three weeks. Classification beyond “edible” is difficult. As a matter of fact in 1917 not one sample was classed “a,” dead ripe. Because we were evidently too strict in our demands for classes “a” and “b” it is evidently fairest only to average composition when class “c” *first* appeared.

The figures in this table represent the greatest acidity, the least sugar content and the lowest B. A. R. (Brix-acid Ratio) which a variety should have for marketing.

The column headed Brix contains the approximate percentage of sugar. The acid column contains the percentage of free acid expressed in terms of tartaric acid. The column headed B. A. R. represents the Brix reading divided by the acidity. The Brix-acid Ratio is the one figure which gives the key to the condition of the grape. The higher the ratio the greater the edibility.

TABLE XXXIV.—AVERAGE COMPOSITION OF GRAPES WHEN FIRST CLASSIFIED "EDIBLE."

Variety	No. of Samples	Brix	Acid	B. A. R.
Concord	11	12.95	1.27	12.0
Worden	14	11.64	1.41	8.3
Niagara	8	13.27	.8	16.6
Campbell	8	11.3	1.73	6.5
Moore	15	11.57	1.68	6.9
Delaware	6	13.39	1.75	7.6
Lindley	3	12.02	1.54	7.8
Vergennes	2	13.3	1.42	9.4
Brighton	4	14.8	1.18	12.5

It is hoped that this investigation may be continued for at least one more year. The work of 1916 was preliminary and, of course, the season of 1917 was abnormal.

MATURING OF GRAPES AFTER CUTTING.

A further experiment dealing with the maturing of grapes has been summarized in the following tables. In order to determine definitely whether grapes ripen after cutting, several tests were made in 1916 of similar samples at the beginning and end of a week. The results demonstrated that there was practically no change after standing for this length of time.

TABLE XXXV.—TESTS SHOWING THE CHANGES IN SUGAR CONTENT AND ACIDITY OF GRAPES AFTER CUTTING.

Variety	Analysis Oct. 3rd and 4th		Analysis Oct. 11th	
	Sugar ° Balling	Acidity	Sugar ° Balling	Acidity
Lindley Seedling	15.5°	.7 %	17. °	.71 %
Brighton	16.7	.69	17.9	.6
Niagara	14.4	.63	15.1	.61
Concord	15.1	.64	15.4	.73
Delaware	20.1	1.27	18.8	1.05
Campbell Early	13.7	.84	12.1	.85
Average	15.9	.79	16.1	.76

The analyses on Oct. 3rd and 4th were made immediately after cutting. The Oct. 11th analyses are of fruit from the same samples one week later.

TABLE XXXVI.—TESTS SHOWING CHANGE IN SUGAR CONTENT AND ACIDITY IN GRAPES AFTER CUTTING.

Variety	Sept. 30th analyzed immediately after cutting		Oct. 10th, remainder of samples taken Sept. 30th	
	Sugar ° Balling	Acidity	Sugar ° Balling	Acidity
Wilder.....	12.7°	1. %	13.1°	.83%
Niagara.....	13.2	.61	14.2	.57
Niagara.....	11.3	.61	11.6	.49
Concord.....	12.3	.84	13.5	.76
Concord.....	14.8	.59	13.7	.46
Worden.....	15.4	.67	14.8	.64
Lindley.....	16.3	.74	16.6	.61
Total.....	13.7	.72	13.9	.62

FRENCH CRAB APPLES FOR CIDER.

It has often been thought that a large percentage of Ontario apples might well find an outlet in the form of cider. While this is undoubtedly true it is believed that our cider will never be a great success until we select the proper varieties and develop the most reliable methods of manufacture.

In Europe cider is consumed in large quantities. Special varieties have been produced for the purpose.

Through the kindness of the United States Department of Agriculture it has been possible to obtain scions of the following varieties of French Crab apples: Martin Fessard, Blanc Mollet, Frequin Rouge, Bramtot, Grise Dieppoise and Amered Berthecourt.

These varieties have been top grafted upon five-year-old apple trees. It is hoped that in possibly three or four years it will be possible to examine the French Crabs at first hand.

While the growth of the imported stock is progressing a study will be made of the cider question. Much work is being done in this matter in America and it is quite likely that either cider or some form of apple extract will become a popular beverage.

CALIFORNIA CANNING PEACHES.

In the spring of 1916 four trees each of several leading varieties of California canning peaches were planted in the Experiment Station orchard. The same summer bud sticks were taken from these young trees to a local nursery and propagated. During 1917 these buds have made growths of varying strengths. The young trees have been dug and are now heeled in ready for 1918 planting.

The list includes:

9 trees Lovell.
9 " Phillip Cling.
31 " Foster.
15 " Runyon Cling.
14 " Tuscan Cling.

30 trees Libby Cling.
12 " Heath Cling.
42 " Peak Cling.
5 " McDevitt Cling.

Different growers are anxious to try these varieties. We shall, therefore, be able to test these California varieties not only for canning purposes but also for productivity and suitability for conditions in Ontario.

BRINE IN CANNED ASPARAGUS.

OPTIMUM STRENGTH OF BRINE: Owing to the fact that various well known authorities have advocated quite different strengths of brine for canning asparagus a simple test was made in order to determine which brine was best suited for conditions in Ontario.

The following table shows the results briefly:—

TABLE XXXVII.—USE OF BRINE IN CANNING ASPARAGUS.

% Salt in Brine	Salt per Imp. gal. water.	Remarks
1%	1 $\frac{3}{4}$ oz.	Flavor too flat; very slight darkening of tin plate.
2%	3 $\frac{1}{2}$ "	Flavor excellent, just enough salt; considered slightly too salty by others; slight darkening of tin.
3%	5 "	Flavor considered excellent by some, slightly too salty by others: slight darkening of tin.
4%	6 $\frac{3}{4}$ "	Considerably too salty; tin considerably darkened.
5%	8 $\frac{1}{2}$ "	Much too salty; tin badly darkened.
10%	1 lb. 1 $\frac{3}{4}$ oz.	Great excess of salt; asparagus dark; tin greatly darkened.

The asparagus used in this pack was carefully washed and trimmed.

Blanching was done by dipping the stalks in boiling water for 9 minutes.

The stalks were then packed in No. 2 sanitary cans, weight 10 oz. net. The various brines were then added, cans sealed and processed in a closed retort for 15 minutes at 240 deg. F.

Cans were cooled after processing.

ACIDIFIED BRINE: It has been stated in California that if the brine used on vegetables be acidified by the use of lemon juice, tartaric acid or vinegar, the vegetables may be much more easily sterilized.

The process was given a trial. Asparagus was canned both in glass jars and in plain tin cans. To each imperial gallon of 2 per cent. brine was added 6 oz. of lemon juice. The acidified brine was added in the usual manner but the containers were merely boiled at 212 deg. F., the glass jars for 45 minutes and the 2 lb. tins for one hour. Although samples are being held in warm rooms not a single instance of spoilage has occurred during eight months.

The lemon flavor is not noticed by those who do not know of its presence. As yet no serious action has been found on the tin.

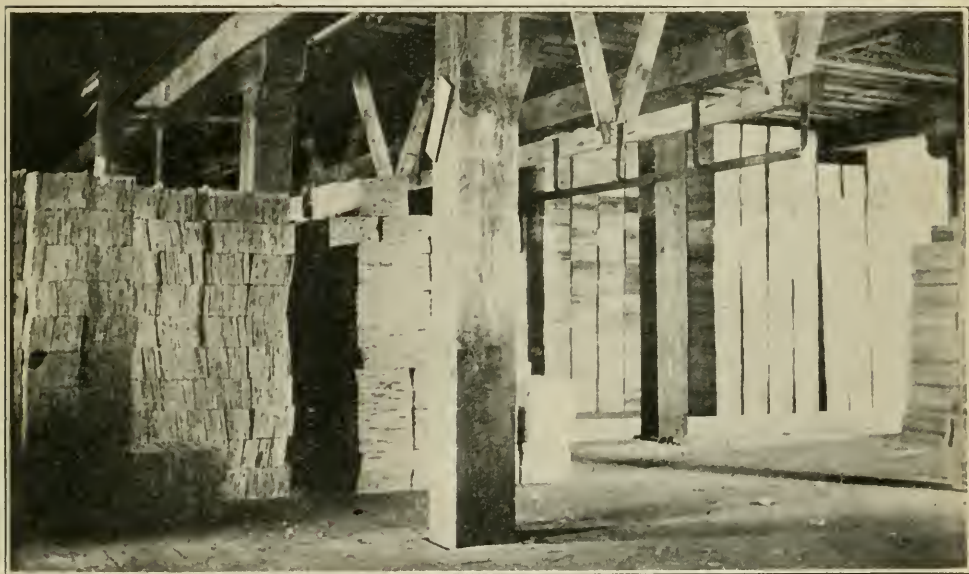
From the trials given it is believed that with asparagus at any rate, acidified brine is a success.

CANNING AND JAM MAKING FOR THE CANADIAN MILITARY HOSPITALS.

The season of 1917 has been one of great production in the preserving of fruit for the Canadian Military Hospitals. The total output was twice that of 1916 and five times that of 1915.

In order to make this increase some changes and additions were hurriedly made in the factory. Because of these improvements the work was done more systematically, with far less waste energy. The introduction of steam power enabled us to elevate to the top storey of the factory sugar and empty cans and cases. On the ground floor the fruits were received at a certain point and travelled continuously through the factory until finally they were deposited on the platform in the finished condition.

Some new features in the factory this year were:-a washing and scalding machine working on the endless belt plan; a proper packing table fitted with a conveyor in the middle and a can chute above; a syruing device for running the syrup into the tins by gravity; a continuous conveying exhaust box for heating cans before sealing; power peeling machines; an electric generator for our own lighting; and a pulping machine for facilitating the handling of waste material.



Corner of warehouse showing piles of nailed cases and shooks.

The season started in early July with the making of strawberry jam. From then until January 10th, 1918, the factory was in constant operation.

Incoming supplies of sugar, boxes, cans, strapping, nails and sometimes fruit, such as Kieffer pears and apples, were unloaded into the warehouse which was directly on the railroad siding. By running our motor truck continuously between the warehouse and the factory empties and raw sugar were gradually brought to the factory and the finished article was gradually deposited at a convenient point for shipment.

As in 1915 and 1916 the 10 lb. hospital size tin was used for all classes of goods.

Owing to the increasing number of Military Convalescent Hospitals in Canada it has this year been found advisable to distribute in this country six carloads of fruits for the use of returned soldiers. The bulk of the shipments have, however, been made to the overseas hospitals.

Following is a list of the 1917 shipments. The total valuation of these goods, at market prices, amounts to \$84,203.93 f.o.b. factory.

SHIPMENTS OF CANNED GOODS, 1917.

Strawberry Jam	645 cases No. 10 tins.
Raspberry Jam	546 ($\frac{1}{2}$ doz. per case.)
Black Currant Jam	387
Blackberry Jam	631
Gooseberry Jam	12
Peach Jam	1,089
Pear Jam	36
Cherry Jelly	24
Red Currants in syrup, 50%	21
Cherry syrup, 50%	439
Plum syrup, 40%	60
Peaches in syrup, 50%	7,665
Pears in syrup, 25%	3,792
Apples in syrup, 20%	809
Tomatoes	141

16,297 cases.
(97,782 gallon cans)

ANNUAL REPORT
OF THE
Bureau of Industries
FOR THE
PROVINCE OF ONTARIO
1917

PART I.—AGRICULTURAL STATISTICS
PART II.—CHATTEL MORTGAGES

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO:
Printed by A. T. WILGRESS, Printer to the King's Most Excellent Majesty

1918

Printed by
WILLIAM BRIGGS,
Corner Queen and John Streets,
TORONTO.

To His Honour SIR JOHN STRATHEARN HENDRIE, C.V.O., a Lieutenant-Colonel
in the Militia of Canada, etc., etc., etc.

Lieutenant-Governor of the Province of Ontario, etc., etc.

MAY IT PLEASE YOUR HONOUR:

I have the honour to present herewith for your consideration the report of
the Ontario Bureau of Industries for the year 1917.

Respectfully yours,

WILLIAM H. HEARST,

Minister of Agriculture.

TORONTO, 1918.

Ontario Bureau of Industries

PART I.—AGRICULTURAL STATISTICS.

THE WEATHER.

TEMPERATURE.—The following table gives the temperature of the Province for each month during the last five years, together with the mean annual temperature, also the mean temperature for the six months April-September—practically the growing season—together with the average for the five years 1913-17, and the thirty-six years, 1882-1917:

Month.	1917	1916	1915	1914	1913	1913- 1917	1882- 1917
January	17.8	24.9	18.7	20.9	26.1	21.7	18.2
February	12.3	15.1	22.7	10.7	15.4	15.2	17.0
March	29.6	21.6	27.3	27.4	29.0	27.0	26.7
April	40.2	43.1	48.6	39.7	44.3	43.2	41.8
May	48.2	53.2	50.9	57.0	52.4	52.3	53.6
June	60.7	60.1	61.0	63.1	63.2	61.6	63.3
July	69.5	74.0	66.9	67.5	68.1	69.2	68.2
August	66.4	70.1	64.2	65.9	66.4	66.6	65.5
September	57.3	59.5	61.5	58.8	57.8	59.0	59.2
October	42.5	47.4	50.0	50.8	49.4	48.0	47.2
November	32.0	34.9	39.1	34.5	40.3	36.2	35.2
December	14.8	22.1	23.9	21.3	29.3	22.3	23.4
Annual mean	40.9	43.8	44.6	43.1	45.1	43.5	43.3
Mean for 6 months, April to September	57.1	60.0	58.8	58.7	58.7	58.6	58.6

The mean temperature for 1917 was 40.9 degrees, being 2.9 degrees lower than the preceding year, and 2.4 degrees lower than the normal for the thirty-six years, 1882-1917.

The mean temperature for the six months, April-September, was 2.9 degrees lower than the preceding year, and 1.5 degrees below the thirty-six year normal. March, July and August were the only months above average, with March the highest with a departure of 2.9 degrees; all the others were below, ranging from 0.4 degrees in January to 8.6 degrees in December.

SUNSHINE.—In the following table the averages of sunshine are as usual, derived from the records of the weather stations at Woodstock, Toronto, Lindsay, Kingston and Ottawa:

Month.	Sun above horizon.	1917	1916	1915	1914	1913	1913- 1917	1882- 1917
	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.
January	285.7	73.9	71.8	73.1	66.0	61.3	69.2	74.9
February	291.4	121.9	96.6	92.7	148.8	111.8	114.4	104.6
March	369.9	154.3	158.4	197.0	128.9	106.7	149.1	144.9
April	406.4	157.7	154.1	186.9	137.6	207.5	168.7	182.5
May	461.1	183.4	206.7	222.4	263.0	241.4	223.4	210.5
June	465.7	205.3	192.0	267.4	262.1	315.5	248.5	245.5
July	470.9	240.7	309.8	236.1	266.0	297.5	270.0	267.2
August	434.5	233.0	275.1	194.4	223.7	257.6	236.7	240.0
September	376.3	197.7	167.6	195.3	210.8	213.4	197.0	186.3
October	340.2	91.4	154.9	146.9	137.5	121.4	120.4	138.6
November	286.9	115.6	101.7	92.6	83.9	95.1	97.8	80.5
December	274.3	98.4	72.8	64.3	66.1	78.6	76.0	62.1
Total for the year..	4,463.3	1,873.3	1,961.5	1,969.1	1,994.4	2,107.8	1,981.2	1,937.6
Total for six months, April to September.	2,614.9	1,217.8	1,305.3	1,302.5	1,363.2	1,532.9	1,344.3	1,332.0

The year 1917 had 1,873.3 hours of sunshine, or 64.3 hours less than the average for the last thirty-six years. The six growing months, April-September, had 1,217.8 hours of sunshine or 14.2 hours less than the thirty-six year normal. Five months were in excess of their average, December being greatest with 36.3 hours, while of the seven months which were below October was 47.2 hours less than normal.

PRECIPITATION.—The fall of both rain and snow for the five winter months, including November, 1916, and March, 1917, is given in the following table for five years, together with the average for the thirty-six years, 1882-1917. One inch of water is equivalent to ten inches of snow:

Months.	1917	1916	1915	1914	1913	1913- 1917	1882- 1917
November:	in.	in.	in.	in.	in.	in.	in.
Rain	1.49	1.92	1.81	2.78	2.66	2.13	2.01
Snow	6.8	4.3	7.7	3.8	7.4	6.0	7.4
December:							
Rain	0.85	0.69	0.43	0.23	1.18	0.68	1.15
Snow	16.6	18.8	17.2	6.8	11.2	14.1	15.2
January:							
Rain	0.66	2.26	0.90	0.56	2.45	1.37	1.01
Snow	20.3	14.9	16.3	21.5	13.6	17.3	19.3
February:							
Rain	0.35	0.07	1.29	0.24	0.31	0.45	0.77
Snow	14.0	19.4	10.7	12.1	13.2	13.9	16.0
March:							
Rain	1.12	0.57	0.18	0.88	2.82	1.11	1.16
Snow	14.8	17.9	5.1	11.2	13.8	12.6	10.8
Five months:							
Rain	4.47	5.51	4.61	4.69	9.42	5.74	6.10
Snow	72.5	75.3	57.0	55.4	59.2	63.9	68.7

The total amount of rainfall for the five months, November-March, was 4.47 inches, or 1.63 inches below the average for the thirty-six years, 1882-1917.

The total amount of snowfall was 72.5 inches, or 3.8 inches above the average. December, January and March were in excess with 1.4, 1.0 and 4.0 inches respectively, while November and February were below with 0.6 and 2.0 inches.

The six months, April-September, however, comprise what is regarded as the growing season for most crops, and the following table gives the rainfall of these months for the last five years, 1913-1917, and for the thirty-six years, 1882-1917:

Months.	1917	1916	1915	1914	1913	1913- 1917	1882- 1917
	in.	in.	in.	in.	in.	in.	in.
April.....	2.23	2.64	1.15	1.93	2.77	2.14	1.79
May.....	2.42	4.51	2.18	1.99	1.93	2.61	2.84
June.....	3.79	3.78	3.06	2.39	1.77	2.96	2.78
July.....	3.49	1.53	3.86	1.41	2.46	2.55	2.80
August.....	2.83	1.99	5.54	3.81	3.43	3.52	2.68
September.....	1.40	2.75	3.39	2.28	1.64	2.29	2.58
Total for six months.....	16.16	17.20	19.18	13.81	14.00	16.07	15.47

The rainfall for the six months, April-September, comprising the growing season, was 16.16 inches, or 1.04 inches less than the previous year, and in comparison with the normal for the thirty-six-year period was 0.69 inches in excess. May and September were below, having a deficiency of 0.42 and 1.18 inches respectively, while the others ranged from 0.15 to 1.01 inches above their respective normals.

VEGETATION AND SPRING SOWING.

Growth in field, forest and orchard according to the May bulletin, appeared to be about a fortnight behind. "It is many years since cattle were so late in getting on pasture," was the remark of several correspondents in various sections of the Province.

SPRING SOWING.—Seeding of spring grains was practically completed by the end of May. As the ground had been in fine condition to receive the seed, the catch was on the whole an excellent one, although a few complained that germination was slow on account of the cool weather since sowing.

The bulletin further said: "There will likely be an increased area of spring wheat, oats and barley. What are known as the planting crops, such as beans, corn, and potatoes, are now being rushed in, as are also roots. A considerable area of corn and early potatoes are already in, notwithstanding the backward season. Should favorable weather ensue, the acreage of most of the spring crops will probably be the largest for a number of years."

STATISTICS OF FIELD CROPS.

The following table gives the acreage, production, and market value of the field crops of Ontario for the year 1917. Detailed tables showing the statistics by counties will be found elsewhere in this report.

Crops.	Acres.	Bushels.	Bushels per acre.	Market Value.	
				Total.	Per acre
				\$	\$ c.
Fall Wheat.....	585,946	13,384,207	22.8	28,078,738	47.92
Spring Wheat.....	182,957	3,679,516	20.1	7,716,693	42.18
Barley.....	551,298	18,387,741	33.4	23,118,166	41.93
Oats.....	2,763,355	111,232,817	40.3	86,640,057	31.35
Peas.....	90,322	1,512,567	16.7	4,855,888	53.76
Beans.....	110,680	1,078,510	9.7	7,446,626	67.28
Rye.....	133,077	2,222,325	16.7	3,614,591	27.16
Buckwheat.....	153,457	2,992,391	19.5	4,278,256	27.88
Corn (for husking).....	258,935	11,513,512	44.5	14,278,407	55.14
Potatoes.....	146,481	18,291,735	124.9	22,530,291	153.81
Carrots.....	2,920	758,292	260	151,658	51.94
Mangels.....	49,148	19,492,626	397	3,898,525	79.32
Turnips.....	93,034	39,989,556	430	7,997,911	85.97
Sugar Beets.....	22,039	6,781,113	308	1,356,223	61.54
Mixed Grains.....	515,593	20,102,421	39.0	20,876,501	40.49
		tons	tons		
Corn (for silo).....	511,329	4,587,176	8.97	18,348,704	35.88
*Hay and Clover.....	3,547,688	6,619,296	1.87	78,166,203	22.03
Totals.....					
1917.....	9,718,259	.....	.....	333,353,438	34.30
1916.....	9,548,876	.....	.....	223,748,948	23.43
1915.....	9,762,951	.....	.....	210,674,415	21.58
1914.....	9,621,444	.....	.....	199,152,945	20.70
1913.....	9,541,537	.....	.....	168,455,253	17.65
1912.....	9,574,474	.....	.....	185,790,341	19.40
1911.....	9,718,741	.....	.....	179,974,358	18.52
1910.....	9,725,684	.....	.....	175,115,742	18.01
1909.....	9,578,323	.....	.....	167,966,577	17.54

* Including Alfalfa.

The acreages devoted to the other crops in 1917 were as follows: Orchards, 280,326; small fruits, 21,964; vineyards, 9,882; garden, 58,297; rape, 37,732; flax, 7,372; hops, 231; tobacco, 5,242; (Essex, 3,690; Kent, 914); summer fallow, 232,679; pasture (cleared), 3,509,945.

THE GRAIN CROPS.

FALL WHEAT.—The bulletin issued in November, 1916, had the following regarding the new crop of winter wheat: "Owing to the drought in August most of the new fall wheat was put in later than usual. The seed-bed in most cases was very dry and hard, and in many instances germination was slow and uneven. Owing to so much late sowing the young fall wheat fields have not had so large a top as usual, although late rains have brought the crop forward more encouragingly. On account of the late harvest, and the rush of farm work generally, because of the lack of labor, the acreage sown is about one-fifth less than that of 1915. Very little injury was reported from the Hessian fly or other insects."

The condition of the crop in April was thus described: "The acreage of fall wheat will be less than that of a year ago by about twenty per cent. The dry, hot summer and early fall rendered the ground too hard for a good seed-bed, and as a consequence much of the sowing was done late, while some land intended for the crop was reserved for barley or other spring grains. Most of the fields were able to show only a small top for their fall growth, but the steady covering of snow extending from December until well into March gave almost perfect protection to the young wheat, and the crop met the first of April in practically the same condition as it entered the winter. When correspondents reported—from April 9th to the 12th—cold nights and sunny days were causing alternating freezing and thawing upon practically bare fields, and the crop was suffering somewhat from 'heaving.' The extent of injury from this so far is not serious, but the actual prospects of the crop cannot be fairly estimated until the young plants get their spring start. Some of the fields were said to be looking rather brown when correspondents wrote, yet life and vigor appeared to be left, which growing weather would carry along. The later sown fields as a rule looked the more patchy, especially where there was little or no drainage."

The May bulletin had the following regarding the crop: "In addition to the freezings and thawings which were so common during March and April, and which caused much heaving of fall wheat, frequent cold winds during that period also told against the crop reaching its best condition. As a result, portions of many fields have been turned under, or were patched with oats, barley, or millet for feeding purposes. Timely rains had fallen as correspondents were reporting, and the warm weather following had revived the fields to such an extent that growers were feeling much more encouraged."

August reports were to the effect that fall wheat would be about an average in yield per acre, although individual yields ranged from 12 to 45 bushels. Injury from midge had been reported from Haldimand, Welland, Lincoln and some adjoining counties, although not to a serious extent. A little rust also had been complained of in various parts of the Province. Harvesting began about July 20th, and was completed in most quarters by the 10th of August. The weather was ideal for cutting and getting in the crop.

The November bulletin remarked: "The yield of fall wheat is practically an average one. The general quality is also up to the standard, notwithstanding the unusually hot weather that hastened harvesting. Complaints were made of rust and smut, but not to a serious extent."

THE NEW FALL WHEAT.—With the prolongation of the war the production of wheat increases in importance. The November bulletin said: "It was the expressed intention of many farmers that the area of fall wheat would be enlarged this season, but the very dry condition of the soil at sowing time, the lateness of the harvest, the press of other work, and the scarcity of field help hindered progress in this particular line, and the indications are that the acreage of new wheat now in the ground will be practically the same as that of last fall. While most of the crop was got in during the last three weeks of September, a considerable portion had to be sown during October—some of it very late in that month—and this, with the slow growth generally owing to the cold, raw weather of October, has resulted in many of the fields having only a small top with which to enter the winter. Several correspondents, however, point out that though small in the blade the plant is vigorous, especially where got in on well prepared land. Comparatively little complaint has been made of injury by insects. Dawson's Golden Chaff still leads all other varieties in popularity."

SPRING WHEAT.—This crop is not now largely raised in the Province, but, according to the August reports, the yield promised to be better than usual, while the straw also showed an improvement in length compared with that of recent years. Cutting began on August 8th, and was proceeding as correspondents wrote.

The November bulletin stated that the acreage of spring wheat was much less than that of fall wheat, but that it also has done well both as to yield and quality. A Huron correspondent spoke well of the Marquis variety.

BARLEY.—"The barley harvest this season," said the August bulletin, "is one of the most satisfactory ever reaped in the Province. The yield per acre runs high, while the straw is long and clean. Odd mention only is made of smut or rust. Some fear, however, that a portion of the crop ripened too rapidly during the hot, dry spell. Harvesting began about the 2nd of August, and was not completed when correspondents reported."

November returns were to the effect that notwithstanding the drouth and extreme heat attending the ripening and harvesting of barley the crop had turned out first-class in yield and general quality, taking the Province over. As in the case of all the cereals, the straw was of good length and general color.

OATS.—This very important crop was thus dealt with in the August bulletin: "Oats promise to exceed even barley as being the bumper grain crop of the year. The average and total yields will likely be the largest on record for Ontario. Individual yields run as high as 60, 70 and even 80 bushels an acre. The straw is of unusual length, and on the whole clean, although here and there complaints are made of rust and smut. While a few early fields were cut by the middle of August, the bulk of the crop has yet to be harvested, and fears are expressed that with the full heads of grain and the great length of straw there will be danger of 'lodging' should heavy rains occur before the fields are cut."

Following is a summary of the November reports: "While the average yield is one of the largest on record, reports vary more regarding oats than in the case of the other leading grains. Early sown fields did much better than those got in later, some of which were caught by wet weather and frost while in the shock, as lack of labor prevented quick harvesting. The weight per measured bushel varies from good to light. A few complaints were made of smut and rust in late oats."

RYE.—"There is only a small acreage of this crop grown for grain," said the August bulletin, "and on the whole it has done fairly—about on all fours with fall wheat."

The November reports were thus summarized: "This crop may be described as fully up to the average in both yield and quality. It is not now largely grown for grain."

PEAS.—According to the August bulletin, peas gave promise of an unusually good yield up to the last week or two of July, but the torrid weather which then prevailed shortened blossoming, and also checked growth where the pods were filling. Green peas grown for the canneries had done relatively better than the common field crop.

"Peas are perhaps the most uneven crop of any grown this season," said the November bulletin. "They have been variously reported as fair, poor and good, but the yield per acre for the province will be practically an average, and well ahead of the results of the two years immediately preceding. The general

quality may be classed as fair. Odd mention only was made of the presence of the weevil."

BUCKWHEAT.—The greater part of this crop was sown late, and much of it was hit by frost while standing, or while lying in the field cut, and suffered more or less in quality. Very little had been threshed as correspondents wrote about the beginning of November.

BEANS.—August reports regarding beans varied greatly, ranging all the way from poor to good. The early part of the season was too cold and rainy for the crop, both for planting and growth, and the drouth following was very trying to late fields. The acreage had been largely increased, many farmers trying beans as a field crop for the first time.

The November bulletin said: "While some have had good returns from beans, there has been small encouragement for others who this year extended their acreage of this crop. Planting as a rule was unusually late, owing to heavy rains in May and June, and at podding time there was a period of drouth accompanied by great heat. Later on the late fields were caught by frost. As a result the yield and quality, except in special cases, are not up to the average. Complaints were made in a few quarters of injury to beans by the corn seed maggot."

CORN.—This crop was put in late generally, owing to the wet weather prevailing at that period. The cold and wet which continued after planting also kept back growth, and when the very warm weather came about the middle of July, the general appearance of the fields were about three weeks behind the normal. Since then, however, the crop came along in a much more promising way, and (especially silo corn) was expected to give a three-fourths yield should it escape frost. When correspondents wrote in August the chances were that some of the fields would fail to mature owing to late planting.

November returns were not encouraging. The season was a poor one for corn, which, like most other spring crops, was very late in planting. Although it made good growth in the latter part of the season, much of it was touched by early frost, and complaints of imperfect cobbing and failure to mature were common. As a consequence there will be considerable soft corn, and there is some anxiety as to the general quality of next year's seed. The scarcity of farm help also delayed the cutting of the crop and the putting of it into the barn or silo, which work was greatly hindered by the bad weather then prevailing.

HAY AND CLOVER.

The April bulletin, speaking of the prospects for clover, said: "This crop, like fall wheat, went through the winter well protected by snow, and came out in the spring in most promising condition. Since the snow disappeared, however, there has been some heaving experienced, but it is too early to judge of its effects. With a favorable spring start the crop ought to be well up to the standard in most localities."

May conditions were thus described in the bulletin issued in that month: "Cold spring weather stunted growth, but the plants are thick, and some correspondents predict a fair crop should favorable weather prevail. Old meadows, which yielded so generously last year, are now in poor condition, but the newer seeding is promising."

The August reports were most encouraging. The bulletin then issued stated: "On the whole hay will rank as an excellent crop, both as to yield and quality. Frequent rains in May and June redeemed many of the clover fields, which had come through the cold, raw early spring stunted in growth and not very promising in appearance. Early cut hay was caught by the rain and injured by exposure in the fields, but the bulk of the crop was harvested under the very best conditions, the curing in most cases being almost perfect. Owing to the hot and dry weather of the latter half of July hastening the ripening of grain, and the scarcity of farm help, some hay lay in coils in the fields, and some was still uncut as correspondents wrote. The second growths of red clover and alsike are said to give good promise of seed. Mowing began on the 10th of July, but owing to the frequent rains the bulk of the crop was cut between July 20th and August 10th."

CLOVER SEED.—Fall reports concerning the prospects for clover seed were not favorable in the main. The crop at one time promised well for seed, but rains delayed cutting, and early frosts did so much injury to the heads that many fields were put to pasture. New sowing of clover is doing well. Alsike is reported as being from fair to good, both for seed and general purposes.

ALFALFA.—This crop wintered better than red clover this year. While some of the reports concerning alfalfa place it as a doubtful crop on account of its tendency to run out early from winter-killing and other causes, the great weight of opinion is favorable toward it as a superior feed for live stock, more especially for dairy cattle.

FIELD ROOTS.

POTATOES.—Judging by the August returns early potatoes had done well, but late varieties were not so promising. Blight had appeared in many localities, but happily it had not made the progress that was feared a few weeks before. The fields as a rule were then looking well, but rain was needed, as the land was very dry.

The November bulletin said: "Potatoes are regarded as a fair crop generally. Except on low soils there has been no marked tendency to rot, and the general quality is good. Owing to rain and the scarcity of farm hands some of the crop remained undug when correspondents reported, and odd reports speak of injury from frost on this account."

ROOTS.—"But for the shortage of help roots would rank among the most promising of field crops," ran the August bulletin. "As it is there are too many weedy fields. Turnips are doing better relatively than mangels, although all classes of roots are beginning to show the effects of the recent very hot and dry weather."

The November bulletin had the following to say regarding the various kinds of roots:

TURNIPS.—This class of roots, generally speaking, will be a satisfactory crop. Although not as a rule large in size, owing to late planting, they are fairly uniform in shape, and of good general appearance. In a few counties the Zebra caterpillar attacked turnip fields and did injury, but the damage was more or less local. About one-third of the crop remained to be pulled on the first of November.

MANGELS.—Only fair in size, but good in quality and yield, is a fair summary of the reports regarding mangels. They are practically all housed.

SUGAR BEETS.—Early sugar beets did well, but those planted late did not give the same satisfaction.

CARROTS.—Very few correspondents had anything to say about field carrots, but that little was favorable.

MISCELLANEOUS.

TOBACCO.—This crop, most of which is grown in the county of Kent, was not in a satisfactory condition when correspondents reported in August. Owing to frequent rains at the time of planting the fields had to be set unusually late, and the wet, cool weather which continued for some time gave the plants a poor start. The prospects then were for a light to medium yield, although a few good fields were reported.

The November bulletin said: "The acreage of tobacco is comparatively small this year. Early planted was a fair crop, but that grown later did not do well, and some of it was caught by frost. On account of the comparatively cold weather the leaf has been drying rather slowly."

THRESHING AND MARKETING.—The following appeared in the November bulletin: "Owing to the delayed harvest and the comparatively large yield of grain, threshing has been going on much later than usual. While most farmers are through, about 25 per cent. of the grain remains to be threshed, and the work will run into December in many localities. Considerable threshing had to be done in the fields on account of the scarcity of labor. Marketing has not been rushed, many preferring to feed the bulk of the grain to their live stock and thus 'sell on foot.' The urgency of other fall work also has kept many farmers from going to market."

FALL PLOWING.—This important item of farm work was much delayed by late harvesting and threshing, wet and cold weather in October, urgent need of silo filling on account of frosts, and the great lack of help. As a consequence the work was not more than half done at the beginning of November, although some individuals had finished, and it was then thought that unless a good deal of open weather occurred the desired acreage of fall plowing would not be completed. Tractors had helped out well, especially on sod, but owing to so much rain in the early part of the fall it was exceedingly hard at times to work the machines. or the horse plows, on stubble.

FARM IMPROVEMENTS.—The rainy weather of the spring and fall, together with the scarcity and high price of tile and the lack of labor, greatly handicapped the progress of underdraining. Nevertheless, a fair amount was done, especially in some of the Lake Erie and adjoining counties. A correspondent in Essex states that forty-seven ditching machines were at work in that county. There has been less building or renovation of houses and barns than in more recent years, on account of the shortage of material and of skilled labor. The increased cost of wire, and the lack of help, also restricted the extent of fencing done.

ORCHARDS AND SMALL FRUITS.

The April bulletin said: "There has been some injury to buds and new wood of peaches, but the effects of the freezing back may not be serious. Otherwise orchard trees are said to be in good condition generally, although some young fruit trees (more especially in the Lake Ontario and St. Lawrence and Ottawa countries) were more or less girdled by mice and rabbits, as is usually the case when the snow lies long and deep. Strawberry fields came through the winter in good shape—or as well as they entered it—but where not mulched have suffered more or less from being heaved by the alternating frosts and thaws of the first week or so of April. Grapevines are said to have been cut back by the severe weather in some districts, but they generally can stand a little of nature's pruning."

"Orchard trees are only beginning to bloom, perhaps two weeks later than ordinarily," said the May bulletin. "Several correspondents point out that this may enable the fruit to escape late frosts. Apples are not blossoming freely, but cherries, plums and pears give promise of good yields. Some peach buds were frozen in the latter part of the winter, but the bulk of the crop was not seriously hurt, and most growers will have fair yields. Small fruits give promise of good returns should they escape frost."

According to the August returns a good deal of spraying had been done, but its effects were more or less neutralized by the rainy weather which was so general in May and June. Apples set poorly, and the summer drop was quite pronounced, the result being that only a very light yield was expected. "Here and there," said the August bulletin, "of course, individual growers will have a much better experience. Plums and pears have done a little better than apples. Peaches will be from light to medium in yield. Cherries, especially the sour varieties, yielded well, but suffered considerably from the fruit fly. Grapes promise well, but are late in growth. Strawberries gave promise of immense yields, but much of the choicest fruit rotted just at picking time on account of the prolonged cold and wet early summer. Raspberries bore heavily, but were somewhat checked by the heated term late in July and early in August."

Fall conditions were thus expressed in the November bulletin: "While some orchards were said to be dying from neglect, it is also claimed that much more intelligent care is now being taken of the trees, generally speaking. There has been a very light yield of apples, especially of the more valuable later varieties. There also appears to be more attention than formerly paid to the matter of grading and packing, and the box is used more as a package. Pears did not give a large yield, although they did better relatively than apples. There was a good supply of peaches in the Niagara district, but some of the later varieties had difficulty in developing into best quality, as the season was unusually late, and some of the early fall weather was rather cold. Plums were fair in yield, where well sprayed for the curculio. Cherries, though attacked by the fruit fly, also did fairly well. Grapes, usually a most satisfactory crop, did not do so well, as owing to the early cold weather most of the fruit had to be picked to escape frost, and before much of it had been sweetened by ripening. Bush fruits as a rule gave very fair yields."

LIVE STOCK AND THE DAIRY.

It required good judgment to carry live stock through the winter economically and in good condition; for while there was an abundance of hay, the other fodders, such as grain, corn, straw and roots, were very light, and mill-feeds and other concentrates were never higher in price.

The April bulletin had the following to say regarding live stock: "There is a surplus of farm horses, which would have been greater but for shipments to the Northwest, chiefly from western Ontario. Horses generally look rather thin, but less disease than usual has been reported among them.

"Fat cattle are scarce, high prices having tempted farmers to part with them sooner than usual. Store cattle are relatively more numerous, but there are not so many as in recent years. All classes of cattle are somewhat leaner than usual, and owners were never more anxious to get them on the grass, as the more succulent feeds, such as roots and silage, are scarce. Cattle practically present a clean bill of health. One serious feature, however, is the fact that too many calves are being slaughtered. One correspondent urges that the Government should prohibit the sale of young animals to the butchers during the war.

"This is a time when the pig is prized. Bacon values never have been so high, and the demand for swine of all ages has never been so strong. Young animals a few weeks old have brought from \$12 to \$15 a pair. The number of swine now on hand is less than in former years, although farmers are trying to get and fit as many as possible. However, the soaring prices of grains, etc., have cut considerably into the profits.

"There appears to be a revival of sheep raising in some quarters, although in many localities this industry is still more or less slighted. The flocks have wintered well, and lambing is reported to be coming on most encouragingly. The dog nuisance is again referred to by several correspondents as a threat to sheep husbandry."

Conditions late in May were thus described in the bulletin then issued: "While healthy, all farm animals are rather thinner in form than is usual at this time of the year. Cattle are largely on the grass, which is rather short yet, and in many cases supplementary feeding is necessary. Butchers' cattle are selling at from 10 to 12 cents a pound. The milk flow is fully up to the average. Cheese factories along the St. Lawrence are slow in selling at 22½ cents a pound. There are plenty of young colts on hand, but there is not a pressing demand for any class of horses at present. Hogs are scarce at from \$16 to \$16.50 a cwt., and too many of them are being turned off light."

August reports were to the following effect: "All classes of live stock are reported to be in good condition. Up to the latter part of July pastures were never better, and the flow of milk had been such as to keep cheese factories, creameries and condenseries working overtime for weeks together. Although the dairy herds have fallen off considerably in milk production, the yield at present is well in quantity for the time of year, and pastures, while showing the effects of the drouth, are in fully average condition. Flies have been very annoying to milking cows, despite ordinary treatment. With plenty of hay, grain and straw, and the likelihood of sufficient corn to fill the silos, the prospects for wintering dairy cattle and other live stock are most encouraging."

DAIRYING.—The November bulletin had the following special reference to the dairy industry: "August and September pastures were never better, and the flow of milk consequently was most gratifying to dairymen. There was much

wet, cold, and generally disagreeable weather in the following month, and the milk yield soon fell to normal, especially as there was a scarcity even of the high-priced mill feeds and other concentrates for supplementary feeding. The dairying business, however, on the whole had a thriving season, every branch endeavoring to get its share of the generous milk production. The introduction of milk condenseries is challenging to some extent the control of the long-established cheese factories and creameries, while the incessant cry from the milk consumers of the cities and towns for "More!" is also increasing competition. Good milch cows are in strong demand at from \$100 to \$130, higher figures being paid for extra good milkers."

The following appeared in the November bulletin: "The general health of live stock is all that could be desired, although many cattle are going off pasture a little lighter than owners would wish. Fewer fat cattle, but a fair number of stockers and butchers' animals are now being marketed. One correspondent bluntly remarks that this winter some cattle will have to 'rough it through,' but others speak of plenty of fodder being on hand for what cattle are kept. There is an abundance of straw for all classes of live stock.

"Hogs are being steadily marketed—'going all the time,' as one report reads. The comparative failure of the corn crop is likely to affect hog raising to some extent, although there will be a large quantity of grain and other fodder to carry a large number of animals along. Prices at present range from \$15 to \$17.50 a cwt. for bacon hogs ready for killing, according to location, quality of the animal, and the offer of the buyer. Small pigs are commanding good figures.

"Sheep are returning to favor. Breeding animals have been well paid for recently by both Canadian and American buyers, and sheep raisers are feeling much encouraged. There is every likelihood of more sheep being kept in the immediate future.

"Horses are not in great demand, but are reported to be in generally fair condition.

"Silos, which are general over the Province, are yearly increasing in favor. The poor crop of corn this year will not affect the popularity of silage as a good feed for cattle and other farm animals. Ontario dairying could not exist to-day without the silo.

METHODS OF FEEDING.—Owners of live stock have been feeding very carefully during the winter. Hay, being a bountiful crop, was given more liberally than usual, but other fodders were doled out sparingly. On many farms stockmen seemed content to have their animals just "winter through," somewhat lean in flesh, yet healthy. Corn is still regarded as a leading fodder crop, sometimes being fed shredded, sometimes as stover, but more commonly as silage. Even in such a poor corn season as the present the silo is proving its worth as a winter feed supply, particularly for dairy cattle. A good word is spoken of alfalfa as a nutritive fodder. Both tied and loose systems of feeding are in vogue, each method having its sturdy advocates. A variety of rations are given for carrying live stock over the winter, among which are the following: Cut straw, silage and roots; straw and chaff mixed with chop and roots; silage, hay and a little grain, finishing off on the grass in the spring. Less concentrates than usual were fed owing to their high cost, but considerable low grade western wheat and oats were brought in. In the fall many sheep and cattle were finished on rape.

FODDER SUPPLIES IN APRIL.—"With the exception of hay, which has been more or less plentiful in every district, all fodders are scarce," said the April

bulletin: "The grains were light in yield last summer, and high prices tempted too many farmers to part with more than was advisable; consequently stores of these are now small. Owing to the poor corn crop, silos are carrying less than usual at this time of the year, while roots are few, turnips in many cases commanding city food prices. Straw has been comparatively scarce, in most localities selling at nearly the price of hay; consequently horses and cattle as a rule have had to get along with less bedding than was needed. Notwithstanding the close scraping indicated, farmers are most hopeful, and expect to pull through with careful feeding until the new supplies come in."

FODDER SUPPLIES IN MAY.—The bulletin issued late in May had the following: "The backwardness of pastures caused a heavy draw upon fodder supplies during May. The high price of mill feeds also cut greatly into barn stores. Grains and silage were very scarce during the month, and but for the good crop of hay last year the feeding situation in most sections of the Province would have been a most serious one. One correspondent says that some farmers are storing hay for next winter's use. Considerable quantities of Western oats for feeding to live stock have been imported during the past few months."

FODDER SUPPLIES IN NOVEMBER.—The bulletin issued in that month said: "It is many years since there was on hand so generous a winter supply of both grains and general roughage, with the exception of corn which is lower than usual in bin and silo. Much of the corn also is not of good quality. Hay gave an abundant yield, although some of it which could not be got in the barn for lack of room has been injured in the stack by rains and raw fall weather. Farmers are disposing of surplus hay at from \$8 to \$14 a ton, according to manner and place of delivery and quality. All classes of cereals turned out well this season, both as to grain and straw, the latter being on the whole of excellent quality either for feed and bedding. In the language of a correspondent, 'bean stover will not be up to much, a good deal of it being frozen and water-logged.' Hog feed will be scarcer than that for horses and those cattle that are carried over mainly by hay, silage, and such fodders, and prices are high for such extra feeds as may have to be purchased. The value per ton for mill products and other concentrates are given as: Bran, \$35 to \$40; shorts, \$42 to 48; oil cake, \$60; cottonseed meal, \$57. Linseed meal was selling at \$7 a cwt."

POULTRY.—The November bulletin contained the following: "There has been a decrease in the number of all classes of poultry. While this is to be partly attributed to poor hatching in the spring, owing to unfavorable weather conditions, a number of poultrymen are discouraged from increasing their stock of fowl notwithstanding the record prices for eggs, holding that the high cost of feed makes maintenance too expensive for a reasonable profit. Several correspondents, however, place profits on laying hens at about a dollar apiece. The demand for eggs for breeding is also reported to have fallen off considerably. Geese and ducks are reported to have done better relatively than other fowl. Turkeys are considered to be difficult to raise under such seasonal conditions as have prevailed.

STATISTICS OF LIVE STOCK.

STATISTICS.—The following table gives the total numbers and value of the several classes of live stock and poultry on hand July 1st, 1917, together with live stock sold or slaughtered in the year preceding that date:—

Live Stock.	Live stock on hand, July 1, 1917.		Sold or slaughtered in year ending June 30, 1917.	
	No.	Value.	No.	Value.
Horses (all ages)	765,873	\$ 99,439,558	83,194	\$ 11,442,831
Cattle:—				
Milch cows	1,069,338	80,774,341 }	903,184	52,893,615
Other cattle	1,758,271	69,535,487 }		
Sheep and lambs	956,986	9,946,930	463,576	4,240,803
Swine (all ages)	1,664,639	21,464,366	2,137,999	41,609,181
Poultry (all kinds)	13,606,292	8,517,195	6,806,531	4,554,451
Totals:				
1917		289,676,977		114,740,881
1916		263,869,539		99,159,081
1915		254,982,332		93,762,223
1914		250,870,078		93,017,235
1913		237,591,885		89,651,016
1912		225,848,942		84,982,339

The values for the several classes of poultry on hand July 1st, 1917, were as follows: Turkeys, \$558,699; geese, \$491,860; ducks, \$279,252; other fowls, \$7,187,384.

VALUE PER HEAD.—The following table gives the average value per head of the live stock and poultry for 1917 and 1916 and at five year intervals.

Live Stock.	Live Stock on hand July 1.					Sold or slaughtered in year ending June, 30.				
	1917	1916	1915	1910	1905	1917	1916	1915	1910	1905
Horses (all ages)	\$ 130	\$ 131	\$ 139	\$ 128	\$ 110	\$ 138	\$ 137	\$ 146	\$ 136	\$ 119
Cattle:—	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Milch cows	75 54	66 35	60 83	40 76	35 06 }	58 56	53 48	49 90	37 44	36 23
Other cattle	39 55	34 91	32 18	22 43	21 29 }					
Sheep and lambs	10 39	8 13	7 05	5 75	4 68	9 15	7 55	6 72	5 36	4 28
Swine (all ages)	12 89	10 83	9 93	8 50	6 44	19 46	15 99	14 98	12 49	9 79
Poultry (all kinds)	63	55	54	43	34	67	62	62	51	39

LABOR, WAGES AND PRODUCTION.

Labor conditions in April were thus described in the bulletin issued in that month: "Wages for farm help were never so high as at present, as owing to the call of war and the attraction of big pay in munition and other factories, suitable men are now very scarce. For efficient farm hands rates range from \$40 to \$50 a month with board, and occasionally more. The proposal to have men and

boys from the towns and cities assist in agricultural work this summer is welcomed by the majority of correspondents, but others scoff at the idea of having to train helpers in a time of rush. The use of larger machinery and increased horsepower is regarded as one way out of the difficulty, and farm help will be exchanged more than ever. It is also stated that in the fields more female labor than ever before from local families will be utilized to meet the emergency. It is claimed that a census taken in a township in Brant county shows that there is only one man available to work every 85 acres of farm land. Reports from other quarters say that frequently there is only one male worker to every 100, and sometimes 150 acres."

The August bulletin said: "With harvesting about half through, a keen demand for farm laborers is still on. During the past week there has been an improved response from the towns and cities to calls from the farm. Fortunately good harvest weather has helped in the clearing off of the ripening crops. Farmers are exchanging work more largely than ever, and their wives and daughters are helping with the rush in the fields. More milking machines are being installed in the dairy districts, and larger field implements are being purchased. Regarding the use of improved machinery, one Representative stated that he is 'snowed under' by requests for the use of the tractor to get the land ready for the new fall wheat, as a large acreage is now being prepared for that crop. Wages range from \$2 to \$3 a day, with board, really efficient men commanding even more; by the month, from \$30 to \$50 is paid, according to ability. Boys get from \$1 to \$1.50 a day."

"The labor situation increases in difficulty as the war continues," said the November bulletin. "The scarcity of help on the farm, necessarily rendered more acute by the working of the Military Service Act, together with the urgency of greater production on the one hand, and the imperative need of strengthening our forces on the firing line on the other hand, causes much perplexity to even the most patriotic farmers. Some correspondents are almost in despair in coming to a conclusion as to what they should do; but there is a general desire expressed that come what may, those remaining behind will use every endeavor to keep up, and if possible, increase production until the final victory is won by Great Britain and her allies. To this end, also, farmers' wives and daughters in considerable numbers, are assisting in field and other heavy work, and neighboring farmers are exchanging labor as never before. As to the matter of wages, the general opinion seems to be that the present rates, though higher than many can afford to pay, will not likely fall until after the war. Skilled farm laborers have been commanding from \$2.50 to \$4 a day, with board, while some have received as high as \$500 and \$600 a year, with board. Domestic servants on the farm are almost impossible to procure, town and city life proving too alluring.



TEMPERATURE OF 1917.

TABLE I.—Showing for each month the highest, lowest, mean daily range and mean temperature at the principal stations in Ontario for 1917; also the annual mean for each station:

Months.	Southampton.	Chatham.	London.	Woodstock.	Stoney Creek.	Toronto.	Lindsay.	Gravenhurst.	Ottawa.	Haileybury.
January:	°	°	°	°	°	°	°	°	°	°
Highest.....	39.9	42.0	40.0	40.0	42.0	40.2	36.6	36.0	34.0	36.0
Lowest.....	- 3.7	- 7.0	-15.0	-15.5	- 7.0	- 9.0	-21.7	-27.0	-20.0	-32.0
Daily range.....	12.4	13.1	16.3	15.5	15.7	14.8	16.9	18.5	17.6	18.7
Monthly mean.....	20.9	21.6	18.9	18.7	22.2	22.6	14.5	15.5	9.9	12.7
February:										
Highest.....	40.2	47.0	45.0	43.5	47.0	45.4	38.6	40.0	41.0	40.0
Lowest.....	-26.1	-16.0	-18.0	-16.5	-11.0	-10.7	-19.6	-32.0	-25.5	-32.0
Daily range.....	10.9	11.9	18.4	15.9	14.0	16.4	21.3	24.8	22.5	25.9
Monthly mean.....	15.7	18.5	15.1	14.0	16.9	17.2	9.1	6.3	6.7	3.7
March:										
Highest.....	63.5	67.0	67.0	64.9	70.0	62.6	62.8	53.0	53.0	52.0
Lowest.....	- 1.2	- 3.0	-10.0	- 3.0	3.0	6.8	- 1.4	- 5.0	- 6.0	-16.0
Daily range.....	16.8	16.0	17.9	16.0	14.1	13.7	17.8	18.2	18.3	20.4
Monthly mean.....	28.5	35.1	32.3	31.1	33.9	32.2	26.8	25.3	25.0	25.5
April:										
Highest.....	72.9	78.0	76.0	74.0	75.0	65.3	70.1	69.0	65.0	64.0
Lowest.....	18.2	23.0	20.0	19.0	24.0	20.4	16.5	12.0	17.5	16.0
Daily range.....	15.1	16.3	19.0	16.9	16.0	15.4	18.9	19.0	15.0	14.6
Monthly mean.....	37.5	43.6	41.3	40.6	41.4	41.1	39.6	38.1	39.5	39.2
May:										
Highest.....	74.0	83.0	80.0	76.6	83.0	77.8	77.4	76.0	80.0	82.0
Lowest.....	26.1	32.0	28.0	29.5	32.0	34.0	30.0	28.0	32.0	31.0
Daily range.....	15.5	19.5	20.3	18.0	17.7	17.2	22.0	22.3	18.5	15.9
Monthly mean.....	44.2	50.6	48.2	47.3	48.9	49.3	48.1	46.8	48.8	50.2
June:										
Highest.....	81.9	86.0	85.0	79.5	84.0	83.2	85.4	81.0	84.0	90.0
Lowest.....	40.1	42.0	38.0	39.0	43.0	40.7	36.0	31.0	38.0	42.0
Daily range.....	19.2	20.5	21.8	17.0	18.9	19.7	22.1	22.6	18.2	16.2
Monthly mean.....	56.8	64.1	61.4	59.3	61.5	60.9	60.0	57.8	62.3	62.8
July:										
Highest.....	93.9	100.0	98.0	92.0	96.0	98.0	95.7	89.0	97.5	94.0
Lowest.....	45.2	50.0	46.0	46.0	49.0	49.0	45.8	45.0	51.0	52.0
Daily range.....	15.3	21.5	22.7	16.9	17.5	19.6	22.0	17.9	18.3	16.2
Monthly mean.....	66.0	72.6	70.4	68.2	70.5	70.5	68.9	66.6	70.0	70.9
August:										
Highest.....	88.4	98.0	95.0	87.3	93.0	92.0	92.5	90.0	97.2	92.0
Lowest.....	42.1	46.0	43.0	43.0	44.0	45.6	35.6	32.0	46.0	44.0
Daily range.....	16.6	22.1	24.2	20.5	18.9	20.0	24.0	21.7	21.4	19.0
Monthly mean.....	64.3	69.7	67.5	64.9	67.7	67.7	65.2	63.0	67.8	66.2
September:										
Highest.....	79.0	84.0	84.0	78.0	81.0	80.8	80.6	75.0	81.0	80.0
Lowest.....	38.6	35.0	32.0	33.5	34.0	36.2	32.0	30.0	32.5	32.0
Daily range.....	17.7	25.2	26.9	21.2	20.7	21.4	26.2	22.9	22.7	20.9
Monthly mean.....	56.9	61.8	57.9	56.0	57.9	58.6	56.2	53.5	57.2	56.7
October:										
Highest.....	67.0	67.0	67.0	65.5	71.0	62.2	64.7	61.0	62.5	58.0
Lowest.....	26.0	26.0	23.0	25.5	27.0	29.0	24.9	21.0	26.0	26.0
Daily range.....	13.3	15.3	18.7	16.0	16.5	15.3	16.8	14.6	14.5	11.6
Monthly mean.....	42.7	44.8	42.7	41.5	44.5	44.6	41.3	40.2	42.8	40.3
November:										
Highest.....	53.3	64.0	58.0	56.6	55.0	54.5	54.5	50.0	52.0	50.0
Lowest.....	8.3	18.0	5.0	8.0	11.0	10.1	- 0.7	- 3.0	- 7.2	- 6.0
Daily range.....	13.4	16.3	17.3	15.5	14.9	14.7	17.0	15.8	14.6	11.9
Monthly mean.....	31.9	36.9	33.0	32.1	34.7	34.5	30.0	28.8	29.3	29.4
December:										
Highest.....	39.4	43.0	41.0	40.0	43.0	41.6	37.8	42.0	40.0	36.0
Lowest.....	-16.8	- 2.0	-11.0	-12.0	- 9.0	-17.0	-33.2	-40.0	-31.0	-38.0
Daily range.....	14.2	11.2	14.5	14.1	13.8	14.2	18.0	19.9	17.9	16.1
Monthly mean.....	17.3	20.5	19.4	17.8	20.9	19.5	11.2	9.5	7.6	4.3
Annual mean.....	40.2	45.0	42.3	40.9	43.4	43.2	39.3	37.6	38.9	38.5

AVERAGE TEMPERATURE FOR THIRTY-SIX YEARS.

TABLE II.—Showing for each month the monthly average for the highest, lowest, mean daily range and the mean temperature at the principal stations in Ontario, derived from the thirty-six years, 1882-1917; also the annual mean at each station for the same period.

Months.	Southampton.	Chatham.	London.	Woodstock.	Stoney Creek.	Toronto.	Lindsay.	Gravenhurst.	Ottawa.	Haileybury.
January:	°	°	°	°	°	°	°	°	°	°
Highest.....	45.2	46.2	46.8	46.7	50.7	45.7	42.0	41.7	40.4	38.4
Lowest.....	- 6.4	- 8.9	-10.1	-11.1	- 4.5	- 7.1	-20.1	-27.3	-21.1	-33.4
Daily range.....	14.6	12.0	15.1	16.3	14.3	14.5	17.6	20.5	17.9	23.7
Monthly mean.....	21.3	21.6	21.7	20.4	25.4	22.4	16.1	14.5	11.4	7.1
February:										
Highest.....	44.0	46.7	46.0	45.0	47.7	44.5	41.7	42.0	40.2	41.1
Lowest.....	-12.2	-11.0	-11.6	-12.1	- 6.7	- 8.2	-18.6	-27.7	-20.7	-34.5
Daily range.....	16.9	13.8	16.8	17.0	15.4	15.3	19.7	22.3	18.5	23.4
Monthly mean.....	18.7	19.8	19.9	23.8	22.3	20.8	15.1	13.4	12.3	9.4
March:										
Highest.....	53.9	58.3	58.6	56.4	60.0	56.3	51.7	50.9	48.4	50.9
Lowest.....	- 2.9	- 1.3	- 0.7	- 1.2	5.2	4.0	- 6.5	-13.7	- 8.2	-23.0
Daily range.....	17.0	14.9	17.5	17.3	15.1	14.5	18.4	21.3	17.5	25.3
Monthly mean.....	26.7	29.2	29.3	27.8	32.0	29.5	25.1	23.3	23.9	20.5
April:										
Highest.....	73.0	76.8	76.5	74.8	77.2	71.2	74.2	71.4	73.3	73.4
Lowest.....	16.4	18.4	18.6	17.4	23.1	21.3	14.2	11.0	15.3	6.7
Daily range.....	17.8	18.1	20.6	20.3	17.4	16.8	21.1	21.1	21.2	24.1
Monthly mean.....	41.5	43.6	43.2	42.9	44.4	42.7	41.6	39.4	41.2	38.7
May:										
Highest.....	80.1	82.3	82.7	80.7	84.4	79.7	82.3	80.9	82.6	84.0
Lowest.....	28.3	29.2	29.3	29.1	33.2	32.0	28.1	26.7	31.1	24.1
Daily range.....	19.6	20.8	22.7	21.9	20.2	19.1	23.7	23.0	22.1	26.1
Monthly mean.....	51.0	54.9	55.3	53.7	54.9	53.7	53.9	52.1	54.7	51.8
June:										
Highest.....	85.3	88.1	88.3	86.6	91.2	87.1	88.5	86.7	87.4	89.4
Lowest.....	37.3	37.6	37.7	38.2	41.8	42.2	38.6	35.8	41.6	33.7
Daily range.....	19.9	21.6	23.3	22.9	21.6	20.2	24.7	24.3	21.4	26.8
Monthly mean.....	60.5	64.3	64.6	63.2	65.3	63.8	63.5	62.1	64.5	61.6
July:										
Highest.....	87.4	92.3	92.3	90.0	95.2	91.4	91.8	89.4	91.1	91.7
Lowest.....	43.8	43.6	43.9	44.3	48.5	48.6	44.2	42.4	48.0	40.8
Daily range.....	20.1	22.0	23.1	23.2	21.6	20.3	24.5	23.3	20.4	25.4
Monthly mean.....	66.5	69.1	69.3	67.7	71.6	69.1	68.0	66.8	68.8	65.7
August:										
Highest.....	86.2	90.1	90.5	88.5	92.9	88.6	89.9	87.8	88.3	88.2
Lowest.....	41.8	42.4	40.7	41.5	46.0	46.2	40.3	38.3	43.6	37.6
Daily range.....	18.2	21.0	23.6	24.0	21.3	22.2	24.2	23.0	20.4	24.1
Monthly mean.....	64.6	66.8	66.5	64.9	69.2	60.6	65.4	64.2	65.8	62.8
September:										
Highest.....	84.9	87.0	86.8	85.4	90.0	85.1	85.9	83.6	84.1	83.6
Lowest.....	34.3	34.1	31.8	31.7	36.4	36.5	31.5	30.4	33.4	29.3
Daily range.....	18.3	19.8	22.6	22.3	20.8	18.8	22.9	22.0	21.0	23.1
Monthly mean.....	59.2	61.0	60.6	59.0	62.8	60.3	58.3	57.4	58.1	55.6
October:										
Highest.....	74.4	75.7	75.9	74.3	77.5	73.3	74.3	72.3	71.2	73.2
Lowest.....	25.6	25.2	23.7	23.6	26.3	26.5	21.5	21.3	24.5	18.1
Daily range.....	16.4	16.6	20.0	19.3	19.0	16.4	19.7	18.9	17.1	19.7
Monthly mean.....	48.0	49.0	48.1	46.9	50.8	48.4	46.2	45.8	45.7	43.4
November:										
Highest.....	61.2	63.0	62.2	61.4	65.1	60.0	59.2	58.8	57.7	56.0
Lowest.....	14.5	13.9	12.8	11.7	17.3	15.4	6.2	6.8	6.8	-0.2
Daily range.....	13.7	12.3	14.9	15.0	14.3	13.0	15.1	14.8	12.1	14.8
Monthly mean.....	36.6	37.2	36.7	35.6	39.5	37.4	33.7	33.2	32.5	29.5
December:										
Highest.....	49.2	48.9	52.7	49.0	53.3	48.4	45.2	44.7	42.4	43.9
Lowest.....	0.1	- 0.4	- 2.6	- 3.2	- 1.1	- 1.1	-13.6	-15.2	-15.8	-24.9
Daily range.....	12.7	10.8	13.3	13.9	12.9	12.7	15.8	17.0	15.0	19.3
Monthly mean.....	26.7	26.3	26.1	24.9	28.9	27.2	21.1	20.7	17.4	14.2
Annual mean.....	43.4	45.2	45.1	43.8	47.3	44.7	42.3	41.1	41.4	38.4

RAIN AND SNOW.

TABLE III.—Summary of the total fall of rain and snow, and the number of days on which rain and snow fell in Ontario during 1917, at stations reporting the whole year, and the average for the province.

Stations	Rain.		Snow.		Stations	Rain.		Snow.	
	Inches	Days	Inches	Days		Inches	Days	Inches	Days
ALGOMA:					MANITOULIN:				
Biscotasing	14.47	74	143.9	58	Gore Bay	17.74	59	88.9	35
Michipicoten Falls ...	19.58	61	133.7	37	MIDDLESEX:				
Ruel	22.83	53	102.0	43	London	32.37	119	106.5	55
Steep Hill Falls	19.57	91	143.8	82	Lucan	21.94	106	101.1	53
BRANT:					Westminster	32.27	57	59.0	21
Paris	35.44	75	48.3	20	MUSKOKA:				
BRUCE:					Beatrice	22.28	74	166.0	50
Lucknow	31.41	113	116.4	75	Ronville	20.30	67	79.0	32
North Bruce	21.59	83	82.9	64	NIPISSING:				
Tobermory	20.54	65	90.0	28	Capreol	15.81	60	93.2	44
Southampton	25.24	99	126.6	89	Madawaska	23.91	49	141.6	32
Wiarton	23.54	60	176.0	48	Montreal River	21.71	53	73.0	30
CARLETON:					North Bay	24.38	75	97.4	44
Ottawa	22.49	99	127.7	60	Rutherglen	23.56	79	108.4	51
DUNDAS:					Sturgeon Falls	21.43	73	71.1	32
Morrisburg	25.77	84	123.9	47	Wawaia Falls	16.63	74	164.4	90
ELGIN:					NORFOLK:				
Dutton	28.36	62	47.6	17	Port Dover	40.96	131	106.4	57
Port Stanley	29.89	138	72.7	60	NORTHUMBERLAND:				
ESSEX:					Healy Falls	20.27	66	93.5	45
Cottam	32.83	67	55.3	22	ONTARIO:				
Leamington	27.47	82	36.5	12	Uxbridge	21.15	84	79.5	34
FRONTENAC:					OXFORD:				
Kingston	26.07	114	74.6	58	Woodstock	29.85	118	62.5	56
GREY:					PARRY SOUND:				
Eugenia	22.91	100	144.5	66	Emsdale	22.66	78	110.8	54
Meaford	23.38	92	142.5	56	Parry Sound	27.52	90	173.9	81
Owen Sound	25.00	80	82.9	55	PEEL:				
HALTON:					Alton	25.34	96	60.0	42
Georgetown	22.17	107	51.0	47	PERTH:				
HASTINGS:					Stratford	32.88	116	69.0	31
Queensboro'	17.82	80	53.0	13	PETERBOROUGH:				
Trenton	27.54	80	79.0	29	Peterborough	21.64	90	77.8	37
HURON:					PRESCOTT:				
Clinton	34.61	98	50.5	40	Vankleek Hill	23.25	48	79.5	31
KENT:					PRINCE EDWARD:				
Chatham	22.89	64	58.0	15	Bloomfield	20.63	65	92.0	25
Wallaceburg	23.89	85	45.0	26	Hillier	22.25	60	69.5	18
LANARK:					Pictou	24.28	73	167.0	41
A'monte	21.97	78	137.4	37	RAINY RIVER:				
LEEDS:					Dryden	14.09	63	58.4	36
Westport	23.70	71	84.2	38	Fort Frances	13.39	70	45.8	28
LINCOLN:					Ignace	13.32	59	126.3	33
Grantham	34.45	91	36.3	27	Kenora	15.37	30	69.5	31
Grimsby	31.19	66	14.8	11	Lac Seul	14.01	53	63.0	68
North Grimsby	29.50	107	53.7	41	Mine Centre	13.38	79	69.6	65
					Sioux Lookout	12.82	49	65.5	41
					White Fish	14.98	57	58.5	47

RAIN AND SNOW—Continued.

TABLE III.—Continued.

Stations.	Rain		Snow		Stations.	Rain		Snow	
	Inches	Days	Inches	Days		Inches	Days	Inches	Days
RENFREW:					WELLAND:				
Clontarf.....	17.94	82	122.8	50	Welland.....	32.22	80	60.8	17
Pembroke.....	19.80	85	100.1	48					
Renfrew.....	15.36	83	91.4	38	WELLINGTON:				
Stonecliffe.....	12.39	101	69.2	60	Elora.....	27.31	102	56.0	30
					Guelph.....	30.66	100	35.7	32
SIMCOE:					Mount Forest.....	26.51	112	121.7	76
Beeton.....	20.65	80	51.6	40					
Coldwater.....	23.45	80	91.7	52	WENTWORTH:				
					Stoney Creek.....	21.62	76	31.3	14
SUDBURY:									
Chapleau.....	12.14	58	120.4	34	YORK:				
Sudbury.....	24.48	85	61.5	38	Agincourt.....	25.34	88	73.0	39
THUNDER BAY:					Deer Park.....	23.10	79	50.6	25
Heron Bay.....	18.81	59	148.5	35	Toronto.....	28.26	123	61.7	55
Kakabeka Falls.....	16.11	63	72.0	37	Wexford.....	22.71	92	59.1	25
Port Arthur.....	11.31	62	36.2	44					
Savanne.....	12.35	34	82.5	33					
Schreiber.....	10.76	61	130.6	57					
TIMISKAMING:					Average for the				
Cochrane.....	18.41	90	84.0	49	Province: 1917..	23.14	80	85.6	43
Haileybury.....	21.47	101	116.8	75	1916..	25.70	90	82.7	42
Iroquois Falls.....	23.25	94	122.2	72	1915..	26.03	85	55.8	32
					1914..	19.65	71	74.3	40
VICTORIA:					1913..	25.73	79	53.9	30
Kinmount.....	23.45	64	93.0	40	1913-1917..	24.05	81	70.5	37
Lindsay.....	18.76	81	81.6	54	1882-1917..	24.17	84	72.8	40

RAIN AND SNOW.

TABLE IV.—Monthly summary of inches of rain and snow in precipitation in the several districts in Ontario in 1917, also the average derived from the thirty-six years, 1882-1917.

Month.	West and South-west.		North and North-west.		Centre.		East and North-east.		The Province.	
	Rain.	Snow.	Rain.	Snow.	Rain.	Snow.	Rain.	Snow.	Rain.	Snow.
1917	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January	0.78	23.0	.....	19.3	1.05	15.5	0.81	23.4	0.66	20.3
February	0.45	15.3	.....	15.3	0.54	8.5	0.40	16.9	0.35	14.0
March	1.59	9.9	0.64	22.3	1.21	10.1	1.05	16.9	1.12	14.8
April	3.03	4.2	1.16	5.3	2.45	3.7	2.27	7.6	2.23	5.2
May	3.47	1.0	1.48	2.8	2.66	0.2	2.06	.....	2.42	1.0
June	5.38	.....	2.85	.....	4.02	.....	2.92	.....	3.79	.....
July	4.25	.....	3.45	.....	3.98	.....	2.29	.....	3.49	.....
August	2.56	.....	3.53	.....	2.67	.....	2.56	.....	2.83	.....
September	1.57	.....	1.76	.....	1.10	.....	1.18	.....	1.40	.....
October	4.13	0.8	2.83	8.6	4.63	1.3	5.03	1.1	4.15	2.9
November	0.76	6.6	0.26	6.5	0.62	4.7	0.58	10.2	0.56	7.0
December	0.18	22.9	0.13	20.6	0.07	16.4	0.19	21.7	0.14	20.4
The Year	28.15	83.7	18.09	100.7	25.00	60.4	21.34	97.8	23.14	85.6
1882-1917										
January	1.25	15.5	0.69	24.4	1.13	17.1	0.97	20.1	1.01	19.3
February	1.12	13.5	0.45	19.3	0.87	14.7	0.61	16.6	0.77	16.0
March	1.35	8.7	0.90	13.2	1.28	9.9	1.10	11.3	1.16	10.8
April	2.02	1.9	1.55	3.7	1.98	2.7	1.62	3.3	1.79	2.9
May	3.21	S	2.62	0.4	2.84	S	2.71	0.1	2.84	0.1
June	2.94	.....	2.69	.....	2.72	.....	2.78	.....	2.78	.....
July	2.67	.....	2.85	.....	2.83	.....	2.85	.....	2.80	.....
August	2.80	.....	2.84	.....	2.37	.....	2.70	.....	2.68	.....
September	2.53	.....	3.01	.....	2.31	.....	2.47	.....	2.58	.....
October	2.72	0.7	2.95	2.0	2.55	0.5	2.45	0.8	2.67	1.0
November	2.22	5.2	1.84	11.9	2.01	5.1	1.82	7.3	1.97	7.4
December	1.40	12.8	0.82	21.7	1.21	12.2	1.06	14.7	1.12	15.3
The Year	26.23	58.3	23.21	96.6	24.10	62.2	23.14	74.2	24.17	72.8

SUNSHINE.

TABLE V. Monthly summary of bright sunshine at the principal stations in Ontario for 1917, showing the number of hours the sun was above the horizon, the hours of registered sunshine, the total for the year, and the average derived from the thirty-six years, 1882-1917.

Month.	Sun above Horizon.	Woodstock.	Toronto.	Lindsay.	Kingston.	Ottawa.	Average of five stations.		
							1917	1916	1882- 1917
1917	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.
January	285.7	86.3	76.2	61.9	68.5	76.8	73.9	71.8	.....
February	291.4	113.2	135.1	106.6	120.9	133.7	121.9	96.6	.....
March	369.9	131.5	159.2	124.4	146.3	210.1	154.3	158.4	.....
April	406.4	140.3	166.2	148.4	154.6	179.2	157.7	154.1	.....
May	461.1	194.8	199.7	160.3	162.4	199.9	183.4	206.7	.....
June	465.7	213.5	223.7	169.8	197.8	221.5	205.3	192.0	.....
July	470.9	253.7	251.9	218.9	231.4	247.5	240.7	309.8	.....
August	434.5	242.8	229.4	203.9	239.8	249.1	233.0	275.1	.....
September	376.3	211.4	229.8	180.4	161.7	205.3	197.7	167.6	.....
October	340.2	95.9	112.0	73.2	84.4	91.6	91.4	154.9	.....
November	286.9	118.4	124.9	97.3	116.5	121.1	115.6	101.7	.....
December	274.3	75.6	88.1	88.2	112.6	127.6	98.4	72.8	.....
The Year	4,463.3	1,877.4	1,996.2	1,633.3	1,796.9	2,063.4	1,873.3	1,961.5	.....
1882-1917									
January		62.4	76.6	73.9	76.3	85.4	.....	.....	74.9
February		91.2	107.8	102.5	110.9	110.7	.....	.....	104.6
March		125.2	152.7	147.4	147.9	151.5	.....	.....	144.9
April		168.6	188.6	183.6	181.6	190.1	.....	.....	182.5
May		209.2	222.0	207.6	206.4	207.1	.....	.....	210.5
June		248.0	259.6	235.2	250.0	234.9	.....	.....	245.5
July		274.0	283.0	252.8	270.6	255.3	.....	.....	267.2
August		234.9	250.3	227.6	247.7	239.6	.....	.....	240.0
September		176.6	208.6	186.8	187.1	172.3	.....	.....	186.3
October		142.8	152.3	128.9	137.6	131.4	.....	.....	138.6
November		77.1	85.1	72.8	80.9	86.4	.....	.....	80.5
December		55.4	66.6	56.6	68.4	63.6	.....	.....	62.1
The Year		1,865.4	2,053.2	1,875.7	1,965.4	1,928.3	.....	.....	1,937.6

RURAL AREA ASSESSED.

TABLE VI.—Showing by County Municipalities the rural area of Ontario as returned by Municipal assessors for 1917; also the comparative totals for the Province of the five years, 1913-1917.

Counties and Districts.	Acres of assessed land.	Acres cleared.	Acres of woodland.	Acres of slash land.	Acres of swamp, marsh or waste land.	Per cent. cleared.
Algoma	309,488	52,413	206,037	19,492	31,546	16.94
Brant	215,950	179,341	9,876	16,997	9,736	83.05
Bruce	934,287	575,435	86,798	149,688	122,366	61.59
Carleton	561,474	374,095	53,435	88,841	45,103	66.63
Dufferin	355,718	282,422	15,853	23,083	34,360	79.39
Dundas	236,682	180,267	18,917	30,744	6,754	76.16
Durham	370,400	306,315	25,034	9,783	29,268	82.70
Elgin	435,855	360,609	47,594	22,414	5,238	82.74
Essex	424,500	358,506	23,638	33,543	8,813	84.45
Frontenac	696,295	255,566	73,338	161,518	205,873	36.71
Glengarry	287,824	196,096	53,594	19,205	18,929	68.13
Grenville	273,064	188,520	30,188	18,705	35,651	69.04
Grey	1,063,463	702,635	109,442	94,867	156,519	66.07
Haldimand	282,052	242,182	29,956	7,837	2,077	85.86
Haliburton	588,494	45,605	423,158	56,245	63,486	77.49
Halton	224,536	172,595	16,290	27,301	8,350	76.87
Hastings	1,073,994	442,286	241,210	211,154	179,344	41.18
Huron	800,260	668,267	47,728	31,481	52,784	83.51
Kenora	82,590	5,544	20,004	39,621	17,421	6.71
Kent	567,834	474,673	30,200	48,563	14,398	83.59
Lambton	659,506	509,557	69,172	77,331	3,446	77.26
Lanark	668,786	333,125	170,400	41,108	124,153	49.81
Leeds	471,281	270,334	101,588	35,898	63,461	57.36
Lennox & Addington ..	446,830	252,799	101,551	43,875	48,605	56.58
Lincoln	189,437	163,076	14,171	10,490	1,700	86.08
Manitoulin	284,431	49,629	52,907	87,610	94,285	17.45
Middlesex	755,988	663,534	60,281	17,865	14,308	87.77
Muskoka	562,461	70,174	309,159	82,763	100,365	12.48
Nipissing	331,362	58,492	201,129	15,489	56,252	17.65
Norfolk	397,900	283,643	54,692	32,636	26,929	71.28
Northumberland	435,251	348,415	36,156	19,537	31,143	80.05
Ontario	508,695	382,536	22,971	47,249	55,939	75.20
Oxford	470,500	401,105	32,850	20,052	16,493	85.25
Parry Sound	638,587	85,676	376,918	102,945	73,048	13.42
Peel	288,013	263,549	7,566	5,871	11,027	91.51
Perth	518,344	454,675	32,919	22,074	8,676	87.72
Peterborough	585,676	262,650	136,737	101,531	84,758	44.85
Prescott	292,750	210,381	30,385	40,408	11,576	71.86
Prince Edward	234,945	199,012	18,110	3,789	14,034	84.71
Rainy River	289,003	35,764	172,246	30,844	50,149	12.37
Renfrew	1,071,723	367,550	382,388	158,187	163,598	34.30
Russell	249,450	152,557	18,345	77,075	1,473	61.16
Simcoe	961,172	675,000	96,906	144,402	44,864	70.23
Stormont	247,859	158,343	33,040	44,990	11,486	63.88
Sudbury	389,630	60,231	153,321	38,834	137,244	15.46
Thunder Bay	455,464	35,162	223,795	102,868	93,639	7.72
Timiskaming	294,062	35,680	180,636	29,099	48,647	12.13
Victoria	599,936	287,426	62,410	131,536	118,564	47.91
Waterloo	307,302	253,661	31,735	6,002	15,904	82.54
Welland	226,316	186,687	17,053	13,264	9,312	82.49
Wellington	627,283	502,975	31,871	16,642	75,795	80.18
Wentworth	269,190	213,520	14,875	12,394	28,401	79.32
York	531,136	437,724	24,901	25,468	43,043	82.41
The Province.						
1917	25,045,029	14,728,014	4,835,474	2,751,208	2,730,333	58.81
1916	25,088,035	14,698,648	4,830,938	2,794,701	2,763,748	58.59
1915	25,014,335	14,620,739	4,950,554	2,686,242	2,756,800	58.45
1914	24,935,350	14,595,068	5,066,783	2,487,396	2,786,103	58.53
1913	24,914,027	14,515,128	5,010,284	2,488,879	2,899,736	58.26

Statistics from Municipal Assessors are compiled by the Bureau of Municipal Affairs.

FALL WHEAT AND SPRING WHEAT.

TABLE VII.—Showing by County Municipalities of Ontario the area, produce and market value of Fall Wheat and Spring Wheat for the year 1917, together with the comparative totals for the Province for 1915 and 1916, and the annual average for various periods.

Counties and Districts.	Fall Wheat.				Spring Wheat.			
	Acres.	Bushels.	Per acre.	Market value.	Acres.	Bushels.	Per acre.	Market value.
				\$				\$
Algoma.....	495	12,920	26.1	27,235	1,653	33,721	20.4	70,477
Brant.....	21,611	397,642	18.4	837,832	69	1,035	15.0	2,174
Bruce.....	25,537	531,170	20.8	1,108,021	3,025	55,055	18.2	112,092
Carleton.....	742	23,373	31.5	48,265	8,770	180,662	20.6	386,255
Dufferin.....	2,285	53,469	23.4	109,665	4,213	92,686	22.0	190,284
Dundas.....	413	12,018	29.1	24,673	2,655	66,906	25.2	139,164
Durham.....	6,167	134,441	21.8	286,494	9,417	177,040	18.8	371,430
Elgin.....	27,379	626,979	22.9	1,320,418	52	858	16.5	1,802
Essex.....	28,557	782,462	27.4	1,642,388	461	11,525	25.0	24,203
Frontenac.....	833	18,743	22.5	39,998	2,389	46,108	19.3	98,072
Glengarry.....	44	1,100	25.0	2,310	4,839	86,618	17.9	179,472
Grenville.....	42	911	21.7	1,913	1,675	40,033	23.9	84,990
Grey.....	18,299	430,027	23.5	898,756	5,959	121,564	20.4	253,218
Haldimand.....	23,666	352,623	14.9	733,808	431	7,241	16.8	15,206
Haliburton.....	60	978	16.3	2,104	250	4,375	17.5	9,166
Halton.....	8,739	182,645	20.9	387,390	1,762	39,821	22.6	82,668
Hastings.....	10,116	216,482	21.4	453,313	4,282	76,220	17.8	157,089
Huron.....	14,931	274,730	18.4	575,834	2,116	45,494	21.5	94,036
Kent.....	60,101	1,418,384	23.6	2,972,933	236	4,649	19.7	9,749
Lambton.....	37,842	1,029,302	27.2	2,140,948	177	3,770	21.3	7,872
Lanark.....	1,358	35,715	26.3	75,002	8,358	178,025	21.3	382,042
Leeds.....	972	27,022	27.8	57,638	2,206	46,326	21.0	99,879
Lennox and Add..	2,563	58,693	22.9	121,612	2,545	47,592	18.7	99,991
Lincoln.....	11,562	224,303	19.4	473,504	176	3,010	17.1	6,499
Manitoulin.....	356	9,078	25.5	18,156	1,980	45,342	22.9	90,684
Middlesex.....	39,940	1,050,422	26.3	2,194,332	366	7,869	21.5	16,769
Muskoka.....	7	111	15.8	231	642	12,583	19.6	26,512
Nipissing.....	36	677	18.8	1,468	1,636	31,738	19.4	68,864
Norfolk.....	33,315	622,991	18.7	1,311,396	56	1,120	20.0	2,380
Northumberland..	8,068	162,974	20.2	341,268	7,756	140,384	18.1	290,876
Ontario.....	7,938	205,594	25.9	428,047	9,917	221,149	22.3	459,548
Oxford.....	21,369	538,499	25.2	1,128,694	201	4,141	20.6	8,928
Parry Sound.....	52	1,284	24.7	2,568	1,449	28,545	19.7	59,317
Peel.....	7,338	161,436	22.0	339,661	3,157	73,874	23.4	151,220
Perth.....	10,365	215,592	20.8	452,743	1,283	29,381	22.9	60,731
Peterborough....	7,694	193,119	25.1	409,412	5,313	91,384	17.2	190,810
Prescott.....	25	500	20.0	1,063	4,709	79,111	16.8	171,275
Prince Edward ..	6,087	130,262	21.4	273,420	2,342	43,327	18.5	89,600
Rainy R. & Kenora	93	1,776	19.1	3,678	1,914	38,854	20.3	81,399
Renfrew.....	1,007	23,967	23.8	50,714	33,239	598,302	18.0	1,282,759
Russell.....	80	1,440	18.0	3,024	2,935	62,222	21.2	130,666
Simcoe.....	54,560	1,440,384	26.4	3,006,081	6,922	143,285	20.7	298,749
Stormont.....	55	1,540	28.0	3,399	2,808	62,057	22.1	130,692
Sudbury.....	80	2,136	26.7	4,449	1,656	41,069	24.8	87,148
Thunder Bay....	51	1,275	25.0	2,550	820	19,844	24.2	40,502
Timiskaming.....	60	1,254	20.9	2,633	1,748	38,281	21.9	77,940
Victoria.....	5,776	164,616	28.5	340,920	7,405	145,879	19.7	297,739
Waterloo.....	18,788	379,518	20.2	807,994	633	11,774	18.6	24,961
Welland.....	17,418	289,139	16.6	620,781	86	1,471	17.1	3,061
Wellington.....	6,294	122,104	19.4	252,389	3,423	82,494	24.1	167,380
Wentworth.....	13,451	270,365	20.1	577,500	320	5,312	16.6	11,208
York.....	21,329	546,022	25.6	1,158,113	10,525	248,390	23.6	517,645
The Province:								
1917.....	585,946	13,384,207	22.8	28,078,738	182,957	3,679,516	20.1	7,716,693
1916.....	704,867	14,942,050	21.2	24,099,591	144,305	2,213,961	15.3	3,591,681
1915.....	811,185	24,737,011	30.5	24,023,286	162,142	3,439,949	21.2	3,392,996
Averages(10 years)								
1902-1911.....	720,272	16,912,017	23.5	14,142,444	182,335	2,269,976	17.9	2,655,591
1892-1901.....	930,794	18,688,313	20.1	12,650,091	356,355	5,405,846	15.2	3,650,840
1882-1891.....	902,846	18,059,235	20.0	16,250,884	563,547	8,882,998	15.8	7,959,306
Average (36 years)								
1882-1917.....	825,923	17,632,724	21.3	15,275,096	329,723	5,318,399	16.1	4,544,172

BARLEY AND OATS.

TABLE VIII.—Showing by County Municipalities of Ontario the area, produce and market value of Barley and Oats for the year 1917, together with the comparative totals for the Province for 1915 and 1916, and the annual averages for various periods.

Counties and Districts.	Barley.				Oats.			
	Acres.	Bushels.	Per acre.	Market value.	Acres.	Bushels.	Per acre.	Market value.
				\$				\$
Algoma	1,661	44,017	26.5	54,845	10,419	352,162	33.8	292,294
Brant	8,250	272,250	33.0	331,601	27,583	1,092,287	39.6	850,892
Bruce	27,329	893,658	32.7	1,112,604	112,395	4,226,052	37.6	3,304,773
Carleton	6,400	210,560	32.9	269,306	89,877	3,640,019	40.5	2,999,376
Dufferin	15,936	552,979	34.7	689,565	61,636	2,718,148	44.1	2,035,893
Dundas	4,265	154,393	36.2	209,357	32,513	1,316,777	40.5	1,104,776
Durham	10,108	297,175	29.4	382,167	54,254	2,012,823	37.1	1,545,848
Elgin	5,863	171,786	29.3	227,273	51,277	1,963,909	38.3	1,537,741
Essex	8,913	332,455	37.3	418,893	65,768	2,900,369	44.1	2,172,376
Frontenac	5,381	133,449	24.8	182,959	41,348	1,381,023	33.4	1,091,008
Glengarry	4,653	127,958	27.5	170,824	41,863	1,423,342	34.0	1,194,184
Grenville	1,591	45,662	28.7	70,456	34,840	1,393,600	40.0	1,176,198
Grey	28,292	981,732	34.7	1,196,731	153,748	6,395,917	41.6	4,905,668
Halldimand	8,820	226,674	25.7	274,049	38,343	1,338,171	34.9	1,042,435
Haliburton	669	17,595	26.3	23,929	9,037	300,028	33.2	253,224
Halton	8,717	312,069	35.8	396,328	31,842	1,445,627	45.4	1,113,133
Hastings	17,960	481,328	26.8	637,278	79,781	2,776,379	34.8	2,223,880
Huron	28,257	960,738	34.0	1,139,435	135,591	5,504,995	40.6	4,106,726
Kent	11,890	382,858	32.2	506,904	62,841	2,576,481	41.0	2,063,761
Lambton	14,196	491,182	34.6	574,683	77,517	3,123,935	40.3	2,249,233
Lincoln	5,629	178,439	31.7	243,391	43,413	1,710,472	39.4	1,387,193
Leeds	3,620	115,116	31.8	157,709	47,398	1,777,425	37.5	1,475,263
Lennox and Add..	8,526	240,433	28.2	314,005	35,873	1,273,492	35.5	971,674
Lincoln	2,221	71,738	32.3	87,951	23,002	970,684	42.2	760,046
Manitowlin	1,575	60,795	38.6	77,514	7,235	332,810	46.0	240,289
Middlesex	15,804	515,210	32.6	608,978	100,720	4,079,160	40.5	3,002,262
Muskoka	856	23,198	27.1	32,292	13,895	448,809	32.3	380,141
Nipissing	1,039	27,118	26.1	35,009	12,192	440,131	36.1	377,632
Norfolk	5,238	161,330	30.8	201,017	44,048	1,590,133	36.1	1,237,123
Northumberland ..	9,972	294,174	29.5	385,662	59,617	2,181,982	36.6	1,776,133
Ontario	21,165	753,474	35.6	964,447	81,957	3,491,368	42.6	2,716,284
Oxford	12,702	486,487	38.3	589,622	80,290	3,621,079	45.1	2,878,758
Parry Sound	1,356	39,731	29.3	50,419	20,580	792,330	38.5	644,164
Peel	20,726	773,080	37.3	987,223	53,208	2,405,002	45.2	1,842,232
Perth	25,830	1,004,787	38.9	1,184,644	105,907	4,861,085	45.9	3,665,258
Peterborough	11,613	310,067	26.7	406,188	51,841	1,793,699	34.6	1,424,197
Prescott	3,326	80,157	24.1	114,464	46,251	1,433,781	31.0	1,237,353
Prince Edward	10,014	283,396	28.3	355,662	26,075	967,383	37.1	739,081
Rainy R'r. & Kenora	1,344	38,304	28.5	51,442	6,695	243,029	36.3	220,670
Renfrew	5,800	155,394	26.7	177,926	67,883	2,396,270	35.3	1,835,543
Russell	3,780	115,668	30.6	164,249	31,300	1,195,660	38.2	988,811
Simcoe	58,099	2,056,705	35.4	2,560,598	141,701	6,249,014	44.1	4,636,768
Stromont	2,655	84,164	31.7	117,325	29,185	1,158,645	39.7	991,800
Sudbury	1,192	34,330	28.8	48,611	10,936	427,598	39.1	377,141
Thunder Bay	764	25,059	32.8	32,426	6,653	296,724	44.6	259,634
Timiskaming	1,228	36,349	29.6	48,090	5,799	226,161	39.0	191,785
Victoria	17,471	545,095	31.2	685,184	63,395	2,548,479	40.2	1,924,102
Waterloo	11,636	414,242	35.6	510,760	59,127	2,601,588	44.0	1,987,613
Welland	2,139	60,320	28.2	76,486	26,896	995,152	37.0	775,223
Wellington	20,816	759,784	36.5	955,808	107,216	4,674,618	43.6	3,627,504
Wentworth	6,862	212,722	31.0	263,988	41,111	1,521,107	37.0	1,222,970
York	37,129	1,340,357	36.1	1,759,889	99,484	4,645,903	46.7	3,581,991
The Province:								
1917	551,298	18,387,741	33.4	23,118,166	2,763,355	111,232,817	40.3	86,640,057
1916	527,886	12,388,969	23.5	12,621,940	2,689,762	71,297,528	26.5	47,066,428
1915	552,318	19,893,129	36.0	11,130,811	2,871,555	120,217,952	41.9	47,452,121
Averages (10 yrs.)								
1902-1911	711,199	21,709,656	30.5	10,870,736	2,703,900	98,968,442	36.6	36,309,289
1892-1901	498,932	13,100,823	26.3	5,037,346	2,291,902	79,229,462	34.6	22,119,649
1882-1891	743,245	19,349,351	26.0	10,547,091	1,663,205	58,410,603	35.1	21,017,492
Average (36 yrs.)								
1882-1917	639,327	17,995,753	28.1	9,569,365	2,305,362	82,479,705	35.8	30,588,957

PEAS AND BEANS.

TABLE IX.—Showing by County Municipalities of Ontario the area, produce and market value of Peas and Beans for the year 1917, together with the comparative totals for the Province for 1915 and 1916, and the annual averages for various periods.

Counties and Districts.	Peas.				Beans.			
	Aeres.	Bushels.	Per acre.	Market value.	Aeres.	Bushels.	Per acre.	Market value.
				\$				\$
Algoma	669	9,165	13.7	26,139		120	5.0	840
Brant	190	2,983	15.7	7,786	1,759	25,506	14.5	175,991
Bruce	5,419	81,827	15.1	275,839	1,322	15,600	11.8	117,000
Carleton	1,299	25,071	19.3	77,419	2,402	39,873	16.6	261,567
Dufferin	1,005	19,799	19.7	65,337	116	1,160	10.0	7,830
Dundas	286	5,234	18.3	12,954	1,432	24,201	16.9	153,676
Durham	7,371	119,410	16.2	393,814	961	12,685	13.2	84,482
Elgin	788	10,244	13.0	29,195	8,553	57,305	6.7	402,281
Essex	46	690	15.0	1,725	1,841	14,728	8.0	110,755
Frontenac	349	5,061	14.5	14,444	1,101	17,836	16.2	113,972
Glengarry	667	9,471	14.2	26,007	905	15,385	17.0	96,926
Grenville	209	3,449	16.5	8,543	1,055	16,775	15.9	107,192
Grey	5,362	98,661	18.4	346,103	734	8,808	12.0	63,506
Haldimand	792	10,534	13.3	31,012	539	4,635	8.6	33,140
Haliburton	139	2,002	14.4	5,736	25	125	5.0	863
Halton	330	6,336	19.2	20,719	470	4,700	10.0	35,861
Hastings	1,872	26,208	14.0	76,632	1,424	17,515	12.3	121,379
Huron	2,103	28,180	13.4	88,795	21,972	208,734	9.5	1,415,217
Kent	398	7,522	18.9	22,566	31,857	261,227	8.2	1,820,752
Lambton	710	14,200	20.0	40,229	3,191	24,890	7.8	177,217
Lanark	1,111	19,109	17.2	56,161	545	7,085	13.0	45,415
Leeds	426	9,116	21.4	24,486	778	9,647	12.4	60,583
Lennox and Add'lon	1,520	22,344	14.7	62,831	799	11,426	14.3	75,069
Lincoln	202	2,565	12.7	8,177	756	5,292	7.0	40,695
Manitowlin	1,429	21,006	14.7	66,631	26	130	5.0	845
Middlesex	571	8,622	15.1	25,073	5,013	39,101	7.8	281,136
Muskoka	476	9,758	20.5	29,128	40	440	11.0	2,640
Nipissing	997	15,058	14.1	49,435	52	702	13.5	4,781
Norfolk	1,423	18,499	13.0	52,722	2,450	21,070	8.6	158,025
Northumberland ...	2,396	40,253	16.8	124,986	1,840	22,264	12.1	151,395
Ontario	4,408	74,054	16.8	237,121	850	8,840	10.4	59,670
Oxford	353	5,295	15.0	14,397	473	4,730	10.0	35,144
Parry Sound	1,806	27,271	15.1	77,504	33	165	5.0	990
Peel	1,238	21,417	17.3	74,210	290	3,045	10.5	20,036
Perth	1,022	16,965	16.6	48,011	523	2,615	5.0	19,743
Peterborough	4,825	67,068	13.9	221,861	384	3,994	10.4	26,001
Prescott	657	10,709	16.3	36,882	883	11,302	12.8	75,610
Prince Edward	4,456	89,120	20.0	254,170	2,787	35,395	12.7	234,315
Rainy Riv. & Kenora	112	1,859	16.6	5,887	7	35	5.0	210
Renfrew	10,774	178,848	16.6	621,318	903	14,087	15.6	91,143
Russell	845	13,520	16.0	45,211	665	11,505	17.3	69,720
Simcoe	5,457	104,229	19.1	354,587	1,688	24,645	14.6	171,529
Stormont	465	8,789	18.9	28,687	671	12,011	17.9	78,432
Sudbury	902	17,950	19.9	56,704	70	350	5.0	2,100
Thunder Bay	160	3,520	22.0	12,250				
Timiskaming	1,515	31,815	21.0	108,235	43	215	5.0	1,290
Victoria	4,276	76,540	17.9	234,978	456	5,335	11.7	37,558
Waterloo	583	11,660	20.0	34,980	418	5,454	13.0	40,212
Welland	115	1,150	10.0	3,067	2,994	23,653	7.9	203,179
Wellington	2,777	43,877	15.8	137,949	876	8,410	9.6	59,543
Wentworth	251	3,012	12.0	9,036	466	2,530	5.0	17,195
York	2,770	51,522	18.6	168,219	1,218	11,449	9.4	81,975
The Province:								
1917	90,322	1,512,567	16.7	4,855,888	110,680	1,078,510	9.7	7,446,626
1916	95,542	1,243,979	13.4	2,618,754	53,999	583,105	10.8	3,183,086
1915	126,943	2,043,049	16.1	3,302,641	62,863	882,819	14.0	2,745,106
Averages (10 years):								
1902-1911	339,104	7,056,642	18.1	5,275,196	50,006	854,999	17.1	1,263,012
1892-1901	759,819	14,242,404	18.5	7,613,480	51,654	875,597	17.0	818,381
1882-1891	668,962	15,908,658	20.8	8,573,501	26,201	469,593	17.9	545,087
Average (36 years):								
1882-1917	532,454	10,173,930	19.1	6,559,445	47,046	766,211	16.3	1,262,406

RYE AND BUCKWHEAT.

TABLE X.—Showing by County Municipalities of Ontario the area, produce and market value of Rye and Buckwheat for the year 1917, together with the comparative totals for the Province for 1915 and 1916, and the annual averages for various periods.

Counties and Districts.	Rye.				Buckwheat.			
	Acres.	Bushels.	Per acre.	Market value.	Acres.	Bushels.	Per acre.	Market value.
				\$				\$
Algoma	36	738	20.5	1,181	182	3,440	18.9	4,644
Brant	4,257	71,943	16.9	122,735	1,207	17,019	14.1	25,460
Bruce	722	10,325	14.3	16,840	3,516	63,288	18.0	86,958
Carleton	509	9,620	18.9	14,190	4,894	104,242	21.3	143,750
Dufferin	5,220	109,620	21.0	183,065	2,019	52,090	25.8	73,186
Dundas	691	13,958	20.2	20,435	1,925	44,468	23.1	62,878
Durham	13,311	194,341	14.6	332,906	5,909	101,044	17.1	150,859
Elgin	1,324	23,700	17.9	36,735	3,853	49,704	12.9	74,755
Essex	1,226	31,999	26.1	50,398	1,555	25,502	16.4	40,931
Frontenac	1,938	30,233	15.6	47,163	2,652	59,670	22.5	86,522
Glengarry					1,810	32,218	17.8	41,980
Grenville	913	17,621	19.3	28,599	4,309	106,001	24.6	150,521
Grey	984	16,728	17.0	27,317	4,025	85,330	21.2	123,131
Haldimand	395	6,715	17.0	10,825	1,627	20,500	12.6	31,857
Haliburton	306	4,957	16.2	7,128	469	9,661	20.6	13,100
Halton	593	10,378	17.5	17,778	1,159	23,991	20.7	35,459
Hastings	6,841	102,615	15.0	159,669	9,831	186,789	19.0	266,174
Huron	711	14,220	20.0	20,377	3,863	68,761	17.8	92,415
Kent	1,344	25,670	19.1	44,409	2,009	26,117	13.0	39,280
Lambton	302	6,040	20.0	9,664	383	4,596	12.0	6,434
Lanark	1,520	25,992	17.1	39,872	4,054	90,810	22.4	116,600
Leeds	688	12,659	18.4	20,128	3,189	78,449	24.6	112,888
Lennox & Addington	3,019	48,002	15.9	74,115	5,458	106,977	19.6	154,368
Lincoln	138	2,484	18.0	3,974	482	8,676	18.0	12,580
Manitoulin	190	3,287	17.3	4,520	111	1,476	13.3	2,214
Middlesex	697	13,452	19.3	20,178	1,456	29,120	20.0	42,632
Muskoka	163	2,445	15.0	4,034	254	4,826	19.0	7,239
Nipissing	151	2,658	17.6	4,146	102	1,999	19.6	2,783
Norfolk	11,181	168,833	15.1	283,808	8,209	100,971	12.3	151,860
Northumberland	12,285	164,619	13.4	273,926	10,658	207,831	19.5	305,096
Ontario	8,715	165,585	19.0	269,738	6,743	151,043	22.4	216,143
Oxford	2,344	37,973	16.2	61,137	2,276	47,796	21.0	71,503
Parry Sound	249	5,304	21.3	8,009	223	5,352	24.0	6,690
Peel	2,697	52,861	19.6	86,163	1,349	27,789	20.6	40,766
Perth	363	5,082	14.0	7,623	1,366	23,495	17.2	29,956
Peterborough	4,338	68,107	15.7	107,269	3,725	65,188	17.5	90,481
Prescott	50	875	17.5	1,422	1,515	34,694	22.9	52,180
Prince Edward	6,081	89,999	14.8	145,798	7,983	180,416	22.6	268,098
Rainy R'r & Kenora	48	1,080	22.5	1,890	24	480	20.0	672
Renfrew	6,633	108,781	16.4	162,301	2,369	42,879	18.1	52,184
Russell	40	680	17.0	1,020	1,345	30,128	22.4	42,059
Simcoe	15,967	290,599	18.2	475,420	10,258	224,650	21.9	314,285
Stormont	75	1,628	21.7	2,714	3,036	61,934	20.4	88,628
Sudbury	112	2,240	20.0	3,226	192	4,800	25.0	6,960
Thunder Bay	256	4,915	19.5	8,257	16	400	25.0	560
Timiskaming	5	75	15.0	120	35	525	15.0	735
Victoria	2,581	45,942	17.8	72,783	4,370	82,156	18.8	113,211
Waterloo	3,081	59,463	19.3	95,601	1,947	36,798	18.9	49,935
Welland	589	9,836	16.7	14,636	1,155	15,131	13.1	23,529
Wellington	1,526	25,332	16.6	37,745	3,691	68,653	18.6	93,505
Wentworth	1,171	22,249	19.0	36,488	1,444	22,238	15.4	31,000
York	4,501	77,867	17.3	130,116	7,225	150,280	20.8	226,622
The Province:								
1917	133,077	2,222,325	16.7	3,614,591	153,457	2,992,391	19.5	4,278,256
1916	148,738	2,354,410	15.8	2,797,290	229,205	3,261,888	14.2	3,555,699
1915	173,736	3,210,512	18.5	2,532,051	193,497	4,278,366	22.1	3,057,398
Averages (10 years)								
1902-1911	112,424	1,877,432	16.7	1,129,754	131,168	2,871,668	21.9	1,503,428
1892-1901	129,188	2,088,786	16.2	937,885	131,005	2,450,389	18.7	949,189
1882-1891	103,636	1,683,211	16.2	1,010,057	69,230	1,413,900	20.4	586,472
Average (36 years)								
1882-1917	118,648	1,956,014	16.5	1,230,109	125,044	2,543,635	20.3	1,383,978

CORN.*

TABLE XI.—Showing by County Municipalities of Ontario, the area, produce and market value of Corn for husking and for fodder for the year 1917, together with the comparative totals for the Province for 1915 and 1916 and the annual averages for various periods.

Counties and Districts.	Corn for husking.				Corn for Silo.			
	Acres.	Bushels.	Per acre.	Market Value.	Acres.	Tons green.	Per acre.	Market value.
				\$				\$
Algoma	107	2,140	20.0	2,675	225	2,250	10.00	9,000
Brant	2,512	110,779	44.1	124,516	8,607	84,607	9.83	338,428
Bruce	520	13,000	25.0	18,200	14,185	112,345	7.92	449,380
Carleton	642	30,495	47.5	36,076	21,746	261,604	12.03	1,046,416
Dufferin	52	1,560	30.0	1,950	2,709	20,995	7.75	83,980
Dundas	1,226	67,430	55.0	87,120	15,034	153,647	10.22	614,588
Durham	1,577	86,735	55.0	101,220	10,981	111,128	10.12	444,512
Elgin	17,155	447,746	26.1	500,530	17,410	114,558	6.58	458,232
Essex	80,722	4,092,605	50.7	4,886,570	4,217	31,628	7.50	126,512
Frontenac	2,454	126,381	51.5	181,104	6,983	68,643	9.83	274,572
Glengarry	702	28,080	40.0	32,011	8,216	100,646	12.25	402,584
Grenville	2,249	113,125	50.3	179,077	8,643	101,296	11.72	405,184
Grey	289	5,780	20.0	7,127	16,747	130,794	7.81	523,176
Haldimand	2,027	41,554	20.5	48,494	6,167	26,210	4.25	104,840
Haliburton	338	6,760	20.0	9,464	356	3,204	9.00	12,816
Halton	387	20,124	52.0	26,825	5,659	52,685	9.31	210,740
Hastings	4,677	202,046	43.2	287,107	14,907	130,734	8.77	522,936
Huron	927	37,080	40.0	46,684	18,975	163,565	8.62	654,260
Kent	58,225	2,952,008	50.7	3,846,466	9,523	64,756	6.80	259,024
Lambton	18,585	771,278	41.5	848,406	21,152	148,064	7.00	592,256
Lanark	1,502	67,590	45.0	85,299	11,964	146,918	12.28	587,672
Leeds	3,634	218,040	60.0	274,294	10,247	142,843	13.94	571,372
Lennox & Addingt'n.	2,032	105,664	52.0	125,212	6,335	59,866	9.45	239,464
Lincoln	3,357	114,138	34.0	162,076	4,647	25,791	5.55	103,164
Manitoulin	115	3,450	30.0	4,313	864	5,590	6.47	22,360
Middlesex	12,306	263,348	21.4	405,029	29,817	203,650	6.83	814,600
Muskoka	247	3,705	15.0	4,631	446	3,568	8.00	14,272
Nipissing	67	1,005	15.0	1,106	140	1,026	7.33	4,104
Norfolk	14,021	405,207	28.9	485,033	12,479	88,601	7.10	354,404
Northumberland ...	2,836	113,440	40.0	136,128	11,987	102,369	8.54	409,476
Ontario	769	38,450	50.0	47,755	18,471	189,882	10.28	759,528
Oxford	3,113	147,868	47.5	178,477	34,202	264,723	7.74	1,058,892
Parry Sound.....	159	2,385	15.0	2,981	239	2,390	10.00	9,560
Peel	472	18,880	40.0	23,600	7,925	61,181	7.72	244,724
Perth	197	5,910	30.0	6,755	19,923	176,518	8.86	706,072
Peterborough	159	3,180	20.0	4,452	8,903	81,373	9.14	325,492
Prescott	1,616	75,306	46.6	107,537	7,136	76,569	10.73	306,276
Prince Edward.....	5,683	315,975	55.6	387,069	5,829	50,537	8.67	202,148
Rainy R'r & Kenora..	41	410	10.0	410	12	36	3.00	144
Renfrew	351	14,391	41.0	18,392	6,798	57,919	8.52	231,676
Russell	685	41,100	60.0	48,621	6,100	66,002	10.82	264,008
Simcoe	743	22,662	30.5	22,662	16,520	158,592	9.60	634,368
Stormont	1,089	52,708	48.4	63,513	9,272	122,576	13.22	490,304
Sudbury	36	540	15.0	540	64	384	6.00	1,536
Thunder Bay								
Timiskaming					4	20	5.00	80
Victoria	320	6,400	20.0	8,960	11,521	97,698	8.48	390,792
Waterloo	438	18,089	41.3	22,919	12,883	105,125	8.16	420,500
Welland	5,746	222,370	38.7	287,747	5,942	38,148	6.42	152,592
Wellington	236	9,440	40.0	10,856	12,608	122,550	9.72	490,200
Wentworth	963	33,705	35.0	42,974	7,538	57,289	7.60	229,156
York	629	31,450	50.0	37,394	18,071	194,083	10.74	776,332
The Province:								
1917	258,935	11,513,512	44.5	14,278,407	511,329	4,187,176	8.97	18,348,704
1916	258,332	12,717,072	49.2	9,446,060	439,411	3,276,185	7.46	10,647,610
1915	309,773	21,760,496	70.2	9,885,292	443,736	4,874,377	10.98	12,185,943
Averages (10 yrs.)								
1902-1911	325,515	22,988,755	70.6	8,780,681	236,330	2,731,936	11.56	5,652,083
1892-1901	294,076	21,218,057	72.2	5,314,705	157,611	1,777,533	11.28	3,555,065
Average (26 years).								
1892-1917	304,419	21,364,425	70.2	7,803,391	250,696	2,715,869	10.83	6,354,006

* The combined average for corn for the ten years 1882-1891 is 195,878 acres, the average value of the produce for the same period being \$3,704,614. The combined average for corn for the thirty-six years 1882-1917 is 455,327 acres, the average value of the produce for the same period being \$11,254,013.

POTATOES AND CARROTS.

TABLE XII.—Showing by County Municipalities of Ontario, the area, produce and market value of Potatoes and Carrots for the year 1917, together with the comparative totals for the Province for 1915 and 1916, and the annual averages for various periods.

Counties and Districts.	Potatoes				Carrots.			
	Acres.	Bushels.	Per acre.	Market value.	Acres.	Bushels.	Per acre.	Market value.
				\$				\$
Algoma	1,299	179,392	138.1	240,385	66	15,180	230	3,036
Brant	2,235	255,461	114.3	357,901	71	23,643	333	4,729
Bruce	3,958	572,327	144.6	612,962	49	7,644	156	1,529
Carleton	4,693	667,814	142.3	800,709	331	100,624	304	20,125
Dufferin	3,104	493,226	158.9	570,662	19	4,750	250	950
Dundas	1,905	279,273	146.6	310,831	21	4,956	236	991
Durham	3,010	322,371	107.1	417,470	25	7,500	300	1,500
Elgin	3,065	194,015	63.3	283,262	37	6,216	168	1,243
Essex	2,878	309,097	107.4	434,899	78	19,500	250	3,900
Frontenac	3,209	424,872	132.4	534,064	81	14,904	184	2,981
Glengarry	2,121	235,855	111.2	312,272	62	14,260	230	2,852
Grenville	2,441	410,332	168.1	470,651	19	5,301	279	1,060
Grey	5,476	853,161	155.8	964,072	96	20,544	214	4,109
Haldimand	1,200	60,720	50.6	85,190	10	1,350	135	270
Haliburton	778	118,878	152.8	123,039	34	6,800	200	1,360
Halton	1,388	175,304	126.3	237,888	26	8,788	338	1,757
Hastings	4,970	660,016	132.8	838,220	99	27,720	280	5,544
Huron	3,737	523,180	140.0	614,213	23	5,750	250	1,150
Kent	3,668	392,109	106.9	541,503	14	3,906	279	781
Lambton	2,804	252,360	90.0	335,386	34	11,560	340	2,312
Lanark	2,305	305,643	132.6	335,596	29	5,510	190	1,102
Leeds	2,768	424,611	153.4	489,152	30	6,900	230	1,380
Lennox & Addington	2,628	342,954	130.5	416,003	108	27,108	251	5,422
Lincoln	1,619	154,938	95.7	220,322	64	20,800	325	4,160
Manitowlin	595	89,786	150.9	96,340	15	5,025	335	1,005
Middlesex	5,747	564,930	98.3	760,961	76	16,644	219	3,329
Muskoka	1,180	194,700	165.0	218,453	69	16,767	243	3,353
Nipissing	1,273	177,456	139.4	223,949	42	9,450	225	1,890
Norfolk	3,409	270,334	79.3	362,248	48	13,200	275	2,640
Northumberland	3,497	366,835	104.9	440,936	74	25,900	350	5,180
Ontario	5,022	641,812	127.8	756,696	16	5,072	317	1,014
Oxford	2,373	257,945	108.7	370,151	28	5,600	200	1,120
Parry Sound	1,594	275,603	172.9	318,597	43	12,900	300	2,580
Peel	2,486	301,552	121.3	392,018	93	18,786	202	3,757
Perth	2,955	399,221	135.1	528,569	29	10,150	350	2,030
Peterborough	2,341	278,813	119.1	360,505	50	13,350	267	2,670
Prescott	2,672	241,014	90.2	318,379	25	7,200	288	1,440
Prince Edward	1,802	204,887	113.7	244,430	38	8,854	233	1,771
Rainy R'r & Kenora	955	141,627	148.3	144,601	38	10,222	269	2,044
Renfrew	3,972	532,645	134.1	624,260	51	11,985	235	2,397
Russell	1,458	198,142	135.9	267,888	45	14,400	320	2,880
Simcoe	8,565	1,438,064	167.9	1,543,043	111	31,080	280	6,216
Stormont	1,948	244,669	125.6	321,006	37	7,548	204	1,510
Sudbury	1,607	204,571	127.3	255,714	84	16,800	200	3,360
Thunder Bay	1,700	263,330	154.9	318,103	43	10,320	240	2,064
Timiskaming	776	76,048	98.0	103,425	34	6,800	200	1,360
Victoria	2,176	309,862	142.4	342,707	36	7,200	200	1,440
Waterloo	2,673	297,238	111.2	417,322	32	6,624	207	1,325
Welland	2,361	115,453	48.9	183,570	69	16,215	235	3,243
Wellington	4,578	649,618	141.9	790,585	50	12,000	240	2,400
Wentworth	3,452	271,327	78.6	399,936	61	19,886	326	3,977
York	6,055	676,344	111.7	879,247	157	47,100	300	9,420
The Province:								
1917	146,481	18,291,735	124.9	22,530,291	2,920	758,292	260	151,658
1916	139,523	7,408,429	53.1	9,684,215	2,391	331,124	138	46,357
1915	173,934	13,267,023	76.3	10,805,026	2,439	686,232	281	85,779
Averages (10 yrs.)								
1902-1911	153,092	17,355,152	113.4	8,928,246	5,243	1,688,002	322	211,000
1892-1901	164,451	18,304,638	111.3	6,150,629	11,163	3,880,538	348	485,068
1882-1891	155,449	18,840,683	121.2	8,476,165	10,243	3,659,347	351	457,417
Average (36 yrs.)								
1882-1917	157,666	18,085,000	114.7	8,778,777	7,878	2,671,108	339	335,606

MANGELS AND TURNIPS.

TABLE XIII. Showing by County Municipalities of Ontario the area, produce and market value of Mangels and Turnips for the year 1917, together with the comparative totals for the Province for 1915 and 1916, and the annual averages for various periods.

Counties and Districts.	Mangels.				Turnips.			
	Acres.	Bushels.	Per Acre.	Market value.	Acres.	Bushels.	Per Acre.	Market value.
				\$				\$
Algoma	48	13,920	290	2,784	580	194,300	335	38,860
Brant	902	381,546	423	76,309	2,825	1,186,500	420	237,300
Bruce	3,128	1,022,856	327	204,571	3,232	1,289,568	399	257,914
Carleton	612	217,872	356	43,575	2,002	860,860	430	172,172
Dufferin	596	237,804	399	47,561	2,931	1,321,881	451	264,376
Dundas	173	69,892	404	13,978	181	73,848	408	14,770
Durham	1,768	799,136	452	159,827	3,597	1,654,620	460	330,924
Elgin	416	116,480	280	23,296	181	59,911	331	11,982
Essex	664	265,600	400	53,120	159	63,600	400	12,720
Frontenac	213	66,030	310	13,206	544	156,128	287	31,226
Glengarry	146	51,100	350	10,220	415	134,875	325	26,975
Grenville	130	54,990	423	10,998	299	122,291	409	24,458
Grey	2,576	991,760	385	198,352	4,328	1,462,864	338	292,572
Haldimand	297	98,901	333	19,780	72	12,600	175	2,520
Haliburton	63	18,900	300	3,780	306	93,636	306	18,727
Halton	1,218	462,840	380	92,568	428	159,644	373	31,929
Hastings	483	160,839	333	32,168	1,605	648,420	404	129,684
Huron	4,271	1,580,270	370	316,054	4,533	1,677,210	370	335,442
Kent	833	385,679	463	77,136	145	60,465	417	12,093
Lambton	895	240,755	269	48,151	143	34,606	242	6,921
Lanark	226	55,596	246	11,119	839	311,269	371	62,254
Leeds	300	122,700	409	24,540	784	350,448	447	70,089
Lennox & Addington	154	42,350	275	8,470	191	60,738	318	12,148
Lincoln	317	116,339	367	23,268	166	65,404	394	13,081
Manitowlin	106	43,036	406	8,607	379	152,737	403	30,547
Middlesex	1,602	586,332	366	117,266	1,884	721,572	383	144,314
Muskoka	81	18,144	224	3,629	602	209,496	348	41,899
Nipissing	70	16,310	233	3,262	365	98,915	271	19,783
Norfolk	344	122,464	356	24,493	1,056	458,304	434	91,661
Northumberland	987	373,086	378	74,617	3,726	1,706,508	458	341,302
Ontario	3,061	1,374,389	449	274,878	9,098	4,576,294	503	915,259
Oxford	1,692	763,092	451	152,618	4,909	2,312,139	471	462,428
Parry Sound	70	17,500	250	3,500	1,061	401,058	378	80,212
Peel	950	302,100	318	60,420	1,015	311,605	307	62,321
Perth	3,095	1,275,140	412	255,028	3,371	1,567,515	465	313,503
Peterborough	909	289,062	318	57,812	2,275	991,900	436	198,380
Prescott	148	63,492	429	12,698	390	147,420	378	29,484
Prince Edward	194	64,602	333	12,921	101	35,350	350	7,070
Rainy R'r & Kenora	37	9,028	244	1,806	170	62,730	369	12,546
Renfrew	245	99,225	405	19,845	603	243,009	403	48,602
Russell	130	60,970	469	12,194	660	322,080	488	64,416
Simcoe	3,486	1,579,158	453	315,832	5,645	2,551,540	452	510,308
Stormont	163	60,799	373	12,160	184	65,136	354	13,027
Sudbury	52	11,700	225	2,340	618	175,512	284	35,103
Thunder Bay	76	30,400	400	6,080	537	262,056	488	52,411
Timiskaming	36	9,000	250	1,800	431	103,871	241	20,774
Victoria	1,026	448,362	437	89,672	3,780	1,742,580	461	348,516
Waterloo	2,217	942,225	425	188,445	4,047	1,671,411	413	334,282
Welland	218	80,006	367	16,001	140	47,180	337	9,436
Wellington	3,270	1,399,560	428	279,912	8,981	4,239,032	472	847,806
Wentworth	911	309,740	340	61,948	1,656	650,808	393	130,162
York	3,543	1,569,549	443	313,910	4,864	2,106,112	433	421,222
The Province:								
1917	49,148	19,492,626	397	3,898,525	93,034	39,989,556	430	7,997,911
1916	42,793	9,756,015	228	1,365,842	91,670	24,067,699	263	3,369,478
1915	50,799	25,356,323	498	2,028,505	97,451	46,598,851	478	4,659,885
Averages (10 years)								
1902-1911	70,809	33,245,680	470	2,659,654	123,855	54,987,697	444	5,498,770
1892-1901	39,984	17,864,726	447	1,429,178	147,080	63,424,431	431	6,342,443
1882-1891	19,546	8,538,096	437	683,048	104,943	42,981,280	410	4,298,128
Average (36 years)								
1882-1917	44,763	20,170,457	451	1,694,872	120,428	51,732,732	430	5,311,097

SUGAR BEETS—MIXED GRAINS.

TABLE XIV.—Showing by County Municipalities of Ontario the area, produce and market value of Sugar Beets and Mixed Grains for the year 1917, together with the comparative totals for the Province for the past eight years, and the annual average for 1907-1917.

Counties and Districts.	Sugar Beets.				Mixed Grains.			
	Acres.	Bushels.	Per acre.	Market value.	Acres.	Bushels.	Per acre.	Market value.
				\$				\$
Algoma.....	20	6,500	325	1,300	581	19,057	32.8	23,821
Brant.....	281	99,755	355	19,951	9,126	349,526	38.3	397,761
Bruce.....	135	27,000	200	5,400	21,272	801,954	37.7	863,704
Carleton.....	247	82,992	336	16,598	9,269	365,199	39.4	381,633
Dufferin.....	195	62,205	319	12,441	15,090	565,875	37.5	574,929
Dundas.....	143	50,479	353	10,096	8,220	323,046	39.3	297,202
Durham.....	134	40,200	300	8,040	20,974	769,746	36.7	742,805
Elgin.....	135	34,290	254	6,858	7,282	254,142	34.9	266,849
Essex.....	1,516	410,836	271	82,167	3,123	131,478	42.1	143,048
Frontenac.....	196	46,648	238	9,329	3,188	105,523	33.1	125,150
Glengarry.....	66	13,200	200	2,640	3,276	95,659	29.2	102,451
Grenville.....	77	28,952	376	5,790	5,126	201,964	39.4	195,703
Grey.....	319	77,198	242	15,440	24,541	1,008,635	41.1	1,078,231
Haldimand.....	82	16,728	204	3,346	5,050	169,680	33.6	195,132
Haliburton.....	25	5,000	200	1,000	250	8,325	33.3	8,949
Halton.....	85	28,900	348	5,780	9,896	420,580	42.5	431,095
Hastings.....	205	57,605	281	11,521	6,500	195,650	30.1	221,671
Huron.....	285	82,365	289	16,473	28,389	1,095,815	38.6	1,131,977
Kent.....	9,327	3,021,948	324	604,390	6,668	253,384	38.0	277,202
Lambton.....	1,901	621,627	327	124,325	11,282	377,742	38.8	437,742
Lanark.....	111	22,200	200	4,440	5,480	172,072	31.4	191,516
Leeds.....	137	49,868	364	9,974	5,078	185,347	36.5	194,614
Lennox and Add..	224	55,328	274	11,066	7,325	243,190	33.2	281,371
Lincoln.....	288	111,168	386	22,234	2,435	88,147	36.2	89,645
Manitoulin.....	35	10,990	314	2,198	1,828	77,873	42.6	83,246
Middlesex.....	530	151,580	286	30,316	13,243	492,640	37.2	445,347
Muskoka.....	39	7,800	200	1,560	527	17,286	32.8	17,580
Nipissing.....	11	1,650	150	330	1,292	42,378	32.8	52,125
Norfolk.....	135	39,285	291	7,857	4,559	147,256	32.3	163,454
Northumberland..	102	34,170	335	6,834	11,530	405,856	35.2	436,295
Ontario.....	144	46,800	325	9,360	29,393	1,202,174	40.9	1,262,283
Oxford.....	207	75,555	365	15,111	21,167	916,531	43.3	933,945
Parry Sound.....	21	4,557	217	911	1,155	38,115	33.0	41,927
Peel.....	178	68,174	202	13,635	13,278	553,693	41.7	657,787
Perth.....	859	326,420	380	65,284	21,581	930,141	43.1	858,520
Peterborough....	25	6,250	250	1,250	4,813	147,278	30.6	154,642
Prescott.....	72	21,600	300	4,320	1,660	43,658	26.3	48,373
Prince Edward..	38	11,894	313	2,379	4,421	147,219	33.3	156,347
Rainy R. & Kenora	26	5,200	200	1,040	309	10,135	32.8	12,669
Renfrew.....	49	17,248	352	3,450	3,486	119,918	34.4	138,505
Russell.....	73	28,397	389	5,679	3,095	108,635	35.1	127,646
Simcoe.....	427	155,428	364	31,086	28,382	1,118,251	39.4	1,167,454
Stormont.....	125	33,250	266	6,650	2,477	89,667	36.2	92,447
Sudbury.....	31	7,750	250	1,550	808	30,300	37.5	35,996
Thunder Bay....	12	2,400	200	480	448	17,024	38.0	21,280
Timiskaming.....	18	3,600	200	720	386	14,668	38.0	18,335
Victoria.....	78	31,200	400	6,240	14,952	514,349	34.4	576,585
Waterloo.....	1,990	431,830	217	86,366	24,725	989,000	40.0	922,737
Welland.....	71	20,093	283	4,018	2,127	70,829	33.3	84,995
Wellington.....	200	64,600	323	12,920	51,488	2,203,686	42.8	2,135,372
Wentworth.....	182	40,950	225	8,190	8,363	316,121	37.8	343,307
York.....	227	79,450	350	15,890	24,679	1,076,004	43.6	1,233,101
The Province:								
1917.....	22,039	6,781,113	308	1,356,223	515,593	20,102,421	39.0	20,876,501
1916.....	22,482	6,023,938	268	843,351	485,986	13,297,354	27.4	12,485,065
1915.....	22,890	8,644,281	378	1,080,535	475,738	19,461,609	40.9	10,602,271
1914.....	18,534	7,466,819	403	933,352	456,631	16,854,550	36.9	10,074,687
1913.....	19,083	6,389,177	335	798,647	414,517	15,113,480	36.5	7,953,111
1912.....	21,054	7,819,066	371	977,383	448,02	16,382,161	36.5	8,674,724
1911.....	24,664	8,941,659	363	1,117,707	486,112	14,845,595	30.5	9,104,141
1910.....	26,879	11,238,577	418	1,348,629	497,936	18,261,803	36.7	9,187,822
Average (11 years)								
1907-1917.....	21,067	7,777,090	369	1,011,366	468,599	15,997,285	34.9	10,367,254

HAY AND CLOVER—ALL FIELD CROPS.

TABLE XV.—Showing by County Municipalities of Ontario the area, produce, and market value of Hay and Clover, and all field crops enumerated in Tables VII to XV for the year 1917, together with the comparative totals for the Province for 1915 and 1916, and the annual averages for various periods.

Counties and Districts.	Hay and Clover.				All Field Crops.		
	Acres.	Tons.	Per acre.	Market value.	Acres.	Value.	Per acre.
				\$		\$	\$ c.
Algoma.....	21,364	38,475	1.80	509,024	39,429	1,308,540	33 19
Brant.....	39,617	81,735	2.06	1,023,322	131,102	4,934,688	37 64
Bruce.....	141,736	257,763	1.82	2,605,984	367,480	11,153,771	30 35
Carleton.....	98,176	177,629	1.81	1,996,550	252,611	8,713,982	30 54
Dufferin.....	69,058	104,579	1.51	1,045,790	186,184	5,957,464	32 00
Dundas.....	50,455	102,148	2.02	1,106,263	121,538	4,183,752	34 42
Durham.....	58,510	106,118	1.81	1,333,903	208,074	7,088,201	34 07
Elgin.....	76,787	153,579	2.00	1,778,445	221,557	6,960,947	31 42
Essex.....	64,995	117,732	1.81	1,672,972	266,719	11,877,577	44 53
Frontenac.....	83,965	144,100	1.72	1,756,579	156,824	4,602,349	29 35
Glengarry.....	63,472	121,313	1.91	1,351,427	133,257	3,955,135	29 68
Grenville.....	49,308	87,871	1.78	1,054,452	112,926	3,975,785	35 21
Grey.....	175,682	310,133	1.77	3,275,004	447,457	14,172,513	31 67
Haldimand.....	80,440	160,588	2.00	1,827,491	169,958	4,459,395	26 24
Haliburton.....	13,117	15,194	1.16	225,631	26,222	720,016	27 46
Halton.....	45,593	94,842	2.08	1,249,069	118,292	4,376,987	37 00
Hastings.....	107,831	199,012	1.85	2,308,539	273,384	8,452,804	30 92
Huron.....	144,416	256,186	1.77	2,707,886	415,100	13,356,974	32 18
Kent.....	84,687	173,475	2.05	1,946,390	343,766	15,045,339	43 77
Lambton.....	112,620	235,643	2.09	2,639,202	303,734	10,240,981	33 72
Lanark.....	75,704	140,186	1.85	1,661,204	164,148	5,285,878	32 20
Leeds.....	73,545	138,637	1.89	1,757,917	155,800	5,401,906	34 67
Lennox & Addington ..	73,332	148,755	2.03	1,541,102	152,632	4,513,923	29 57
Lincoln.....	53,757	109,991	2.05	1,362,788	105,189	3,394,164	32 27
Manitoulin.....	20,110	40,805	2.03	401,521	36,949	1,150,990	31 15
Middlesex.....	129,706	264,615	2.04	3,040,426	359,478	11,952,948	33 25
Muskoka.....	27,958	48,671	1.74	610,334	47,482	1,397,928	29 44
Nipissing.....	22,720	42,492	1.87	529,875	42,185	1,380,042	32 71
Norfolk.....	61,347	104,230	1.70	1,253,887	203,318	6,144,008	30 32
Northumberland.....	72,216	147,588	2.04	1,748,918	219,547	7,249,028	33 02
Ontario.....	71,812	141,318	1.97	1,721,253	279,479	11,099,024	39 71
Oxford.....	87,382	174,402	2.00	2,181,769	275,081	10,142,694	36 87
Parry Sound.....	32,337	61,440	1.90	739,504	62,427	2,099,433	33 61
Peel.....	60,684	119,490	1.97	1,574,878	177,084	6,574,651	37 13
Perth.....	106,344	218,013	2.05	2,367,621	305,012	10,572,091	34 66
Peterborough.....	51,928	90,464	1.74	1,364,197	161,136	5,345,619	33 17
Prescott.....	78,229	137,042	1.75	1,469,090	149,364	3,987,846	26 70
Prince Edward.....	48,065	99,729	2.07	1,100,011	131,996	4,474,290	33 90
Rainy River & Kenora..	20,598	18,711	1.91	387,505	32,423	928,613	28 64
Renfrew.....	96,677	153,054	1.58	1,685,125	240,860	7,046,140	29 25
Russell.....	55,373	93,756	1.69	1,038,816	108,609	3,276,908	30 17
Simcoe.....	112,886	203,963	1.81	2,620,925	471,417	18,669,911	39 60
Stormont.....	45,669	94,423	2.07	1,019,768	99,914	3,462,062	34 65
Sudbury.....	24,897	39,586	1.59	505,513	43,337	1,427,991	32 95
Thunder Bay.....	13,506	14,094	1.04	281,880	25,042	1,038,477	41 47
Timiskaming.....	11,383	20,228	1.78	267,819	23,501	845,141	35 96
Victoria.....	52,864	93,489	1.77	1,188,245	192,483	6,660,632	34 60
Waterloo.....	54,767	110,405	2.02	1,449,618	199,985	7,399,570	37 00
Welland.....	58,978	108,359	1.84	1,480,184	127,044	3,941,748	31 03
Wellington.....	122,074	209,364	1.72	2,374,188	350,104	12,276,062	35 06
Wentworth.....	58,980	116,798	1.98	1,507,862	147,182	4,896,897	33 27
York.....	90,031	177,083	1.97	2,468,537	332,437	13,779,623	41 45
The Province:							
1917.....	3,547,688	6,619,296	1.87	78,166,203	9,718,259	333,353,438	34 30
1916.....	3,471,984	7,200,047	2.07	76,326,501	9,548,876	223,748,948	23 43
1915.....	3,231,752	4,253,763	1.32	61,704,769	9,762,951	210,674,415	21 58
Averages (10 years)							
1902-1911.....	3,072,288	4,722,662	1.54	47,093,908	9,233,879	156,824,689	16 98
1892-1901.....	2,520,783	3,650,840	1.45	29,085,813	8,494,796	106,139,762	12 49
1882-1891.....	2,290,495	3,102,733	1.35	32,086,445	7,517,606	116,195,708	15 48
Average (36 years)							
1882-1917.....	2,758,300	4,050,647	1.47	40,764,681	8,617,509	142,021,595	16 48

SUMMER FALLOW, PASTURE, ORCHARD, SMALL FRUITS, VINEYARD
AND GARDEN.

TABLE XVI.—Showing by County Municipalities of Ontario the area of Summer Fallow, Pasture, Orchard, Small Fruits, Vineyard and Garden for the year 1917.

Counties and Districts.	Summer fallow.	Pasture.	Orchard.	Small Fruits.	Vine- yard.	Garden.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Algoma	444	7,927	528	96	5	459
Brant	3,548	29,456	4,220	374	7	880
Bruce	15,978	153,562	8,476	439	42	1,594
Carleton	1,315	99,159	2,195	195	11	1,362
Dufferin	4,845	60,084	2,491	65	15	587
Dundas	552	45,119	2,364	104	30	670
Durham	5,303	68,338	10,499	345	54	1,064
Elgin	6,060	97,806	9,046	750	52	1,709
Essex	2,358	56,348	6,910	1,331	316	2,755
Frontenac	1,547	82,172	2,256	238	9	1,225
Glengarry	124	49,271	1,298	77	4	634
Grenville	469	60,262	1,567	54	17	641
Grey	11,965	173,345	12,536	335	99	1,768
Haldimand	11,820	39,961	5,279	362	58	978
Haliburton	119	14,971	152	15	.....	264
Halton	4,093	30,807	7,790	1,290	166	778
Hastings	2,445	121,881	9,887	401	56	1,860
Huron	6,805	187,790	13,017	376	40	1,643
Kent	4,783	96,075	6,707	709	51	2,180
Lambton	4,116	152,451	13,600	778	92	1,898
Lanark	1,321	122,966	1,577	68	25	791
Leeds	459	93,238	2,038	131	.....	1,035
Lennox and Addington	2,418	76,479	4,300	473	20	1,139
Lincoln	4,527	22,460	15,773	2,207	5,156	1,311
Manitoulin	297	9,528	277	54	.....	208
Middlesex	8,526	251,327	12,359	754	41	2,748
Muskoka	518	17,004	212	55	.....	668
Nipissing	107	11,260	38	24	.....	346
Norfolk	9,172	46,336	8,901	2,053	39	1,686
Northumberland	5,540	78,385	19,900	533	66	1,293
Ontario	3,559	71,829	6,730	597	56	1,428
Oxford	3,898	92,811	8,566	657	115	1,690
Parry Sound	1,192	18,415	144	18	6	508
Peel	7,356	59,543	5,637	565	35	832
Perth	7,474	109,478	6,068	218	21	1,279
Peterborough	4,113	67,158	2,754	195	10	1,005
Prescott	717	50,514	877	113	6	821
Prince Edward	1,268	44,567	10,508	533	.....	780
Rainy River and Kenora	443	6,881	7	22	.....	353
Renfrew	3,316	93,685	1,104	97	38	1,563
Russell	30	34,045	728	43	10	655
Simcoe	35,740	119,193	9,743	492	57	2,520
Stormont	130	46,549	1,480	41	31	556
Sudbury	1,448	9,464	17	27	.....	370
Thunder Bay	628	4,444	16	26	.....	419
Timiskaming	695	4,539	19	6	.....	271
Victoria	2,038	62,603	2,427	166	45	893
Waterloo	6,174	33,322	4,415	271	15	765
Welland	7,669	30,523	7,807	874	929	1,166
Wellington	6,815	98,613	5,909	284	40	1,287
Wentworth	5,706	32,883	10,898	1,380	1,972	1,333
York	10,696	63,118	8,279	653	25	1,629
The Province:						
1917	232,679	3,509,945	280,326	21,964	9,882	58,297
1916	331,736	3,469,581	280,653	22,817	9,807	57,107
1915	226,217	3,350,420	288,825	23,443	10,276	57,774
1914	268,714	3,302,503	298,627	23,863	10,850	58,167
1913	268,487	3,120,146	306,764	24,360	11,136	55,029
1912	278,317	3,082,671	310,696	24,699	11,634	56,716
1911	279,220	3,116,768	303,188	25,360	11,586	58,748
1910	254,038	3,159,712	298,347	24,384	11,390	57,982

RATIOS OF AREAS UNDER CROP.

TABLE XVII.--Showing by County Municipalities of Ontario the number of acres under the various crops in 1917 per 1,000 acres of cleared land; together with the comparative average for the Province for 1915 and 1916, and the annual averages for various periods.

Counties and Districts.	Fall Wheat.	Spring Wheat.	Barley.	Oats.	Peas.	Beans.	Rye.	Buck-wheat.	Corn.	Potatoes.	*Other roots.	Hay and Clover.	Mixed Grains.
Algoma	9.4	31.5	31.7	198.8	12.8	0.5	0.7	3.5	6.3	24.8	13.6	407.6	11.1
Brant	120.5	0.4	46.0	153.8	1.1	9.8	23.7	6.7	62.0	12.5	22.7	220.9	50.9
Bruce	44.4	5.3	47.5	195.3	9.4	2.1	1.3	6.1	25.6	6.9	11.4	246.3	37.0
Carleton	2.0	23.4	17.1	240.3	3.5	6.4	1.4	13.1	59.8	12.5	8.5	262.4	24.8
Dufferin	8.1	14.9	56.4	218.2	3.6	0.4	18.5	7.2	9.8	11.0	13.2	244.5	53.4
Dundas	2.3	14.7	23.6	180.4	1.6	7.9	3.8	10.7	90.2	10.6	2.9	279.9	45.6
Durham	20.1	30.7	33.0	177.1	24.1	3.1	43.5	19.3	41.0	9.8	18.0	191.0	68.5
Elgin	75.9	0.1	16.3	142.2	2.2	23.7	3.7	10.7	95.9	8.5	2.1	212.9	20.2
Essex	79.7	1.3	24.9	183.5	0.1	5.1	3.4	4.3	236.9	8.0	6.7	181.3	8.7
Frontenac	3.2	9.3	21.1	161.8	1.4	4.3	7.6	10.4	36.9	12.6	4.0	328.5	12.5
Glengarry	0.2	24.7	23.7	213.5	3.4	4.6	...	9.2	45.5	10.8	3.5	223.7	16.7
Grenville	0.2	8.9	8.4	184.8	1.1	5.6	4.8	22.9	57.8	12.9	2.8	261.6	27.2
Grey	26.0	8.5	40.3	218.8	7.6	1.1	1.4	5.7	24.3	7.8	10.4	250.0	34.9
Haldimand	97.7	1.8	36.4	158.3	3.3	2.2	1.6	6.7	33.8	5.0	2.0	332.1	20.9
Haliburton	1.3	5.5	14.7	198.2	3.0	0.5	6.7	10.3	15.2	17.1	9.4	287.6	5.5
Halton	50.6	10.2	50.5	184.5	1.9	2.7	3.4	6.7	35.0	8.1	10.2	264.2	57.3
Hastings	22.9	9.7	40.6	180.4	4.2	3.2	15.5	22.2	44.3	11.2	5.4	243.8	14.7
Huron	22.3	3.2	42.3	202.9	3.1	32.9	1.1	5.8	29.8	5.6	13.6	216.1	42.5
Kent	126.6	0.5	25.1	132.4	0.9	67.1	2.8	4.2	142.7	7.7	21.7	178.4	14.1
Lambton	74.3	0.3	27.9	152.1	1.4	0.3	0.6	0.8	78.0	5.5	5.8	221.0	22.1
Lanark	4.1	25.1	16.9	130.3	3.3	1.6	4.5	12.2	40.4	6.9	3.6	227.3	16.5
Leeds	3.6	8.2	13.4	175.3	1.6	2.9	2.5	11.8	51.3	10.2	4.6	272.1	18.8
Lennox & Addington	10.1	10.1	33.7	141.9	6.0	3.2	11.9	21.6	33.1	10.4	2.7	290.1	29.0
Lincoln	70.9	1.1	13.6	141.1	1.2	4.6	0.8	3.0	49.1	9.9	5.1	329.7	14.9
Manitoulin	7.2	39.9	31.8	145.8	28.8	0.5	3.8	2.2	19.7	12.0	10.8	405.2	36.8
Middlesex	60.2	0.6	23.8	151.8	0.9	7.5	1.1	2.2	63.5	8.6	6.2	195.5	19.9
Muskoka	0.1	9.1	12.2	198.0	6.8	0.5	2.3	3.6	9.9	16.8	11.3	398.4	7.6
Nipissing	0.6	28.0	17.8	208.4	17.1	0.9	2.6	1.7	3.5	21.8	8.3	388.4	22.1
Norfolk	117.5	0.2	18.5	155.3	5.0	8.6	39.4	28.9	93.4	12.0	5.6	216.3	16.1
Northumberland	23.2	22.3	28.6	171.1	6.9	5.3	35.2	30.6	42.5	10.0	14.0	207.3	33.1
Ontario	20.8	25.9	55.3	214.3	11.5	2.2	22.8	17.6	50.3	13.1	32.2	187.7	76.9
Oxford	53.3	0.5	31.7	200.2	0.9	1.2	5.8	5.7	93.0	5.9	17.0	217.8	52.8
Parry Sound	0.6	16.9	15.8	240.2	21.1	0.4	2.9	2.6	4.7	18.6	13.9	377.4	13.5
Peel	27.8	12.0	78.6	201.9	4.7	1.1	10.2	5.1	31.9	9.4	8.5	230.2	50.4
Perth	22.8	2.8	56.8	232.9	2.2	1.1	0.8	3.0	44.3	6.5	16.2	233.9	47.5
Peterborough	29.3	20.2	44.2	197.4	18.4	1.5	16.5	14.2	34.5	8.9	12.4	197.7	18.3
Prescott	0.1	22.4	15.8	219.9	3.1	4.2	0.2	7.2	41.6	12.7	3.0	371.9	7.9
Prince Edward	30.6	11.8	50.3	131.0	22.4	14.0	30.6	40.1	57.9	9.0	1.9	241.5	22.2
Rainy R'r & Kenora	2.2	46.3	32.5	162.1	2.7	0.2	1.2	0.6	1.3	23.1	6.6	498.6	7.5
Renfrew	2.7	90.4	15.8	184.7	29.3	2.5	18.0	6.5	19.5	10.8	2.6	363.0	9.5
Russell	0.5	19.2	24.8	205.2	5.5	4.4	0.3	8.8	44.5	9.5	5.9	363.0	20.3
Simcoe	80.8	10.3	86.1	209.9	8.1	2.5	23.7	15.2	25.6	12.7	14.3	167.2	42.0
Stormont	0.4	17.7	16.8	184.3	2.9	4.2	0.5	19.2	65.4	12.3	3.2	288.4	15.7
Sudbury	1.3	27.5	19.8	181.5	15.0	1.2	1.9	3.2	1.7	26.7	13.0	413.3	13.4
Thunder Bay	1.5	23.3	21.7	189.2	4.6	...	7.3	0.5	...	48.3	19.0	384.1	12.7
Timiskaming	1.7	49.0	34.4	162.5	42.5	1.2	0.2	1.0	0.1	21.8	14.5	319.0	10.8
Victoria	20.1	25.8	60.8	220.5	14.9	1.6	9.0	15.2	41.2	7.6	17.1	183.9	52.0
Waterloo	74.1	2.5	45.9	233.1	2.3	1.6	12.1	7.7	52.5	10.5	32.7	215.9	97.5
Welland	93.3	0.5	11.4	144.1	0.6	16.0	3.2	6.2	62.6	12.6	2.7	315.9	11.4
Wellington	12.5	6.8	41.4	213.2	5.5	1.7	3.0	7.3	25.5	9.1	24.9	242.7	102.4
Wentworth	63.0	1.5	32.1	192.5	1.2	2.2	5.5	6.8	39.8	16.2	13.2	276.2	39.1
York	48.7	24.0	84.8	227.3	6.3	2.8	10.3	16.5	42.7	13.8	20.1	205.7	56.4
The Province:													
1917	39.8	12.4	37.4	187.6	6.1	7.5	9.0	10.4	52.3	10.0	11.4	240.9	35.0
1916	47.9	9.8	35.9	183.0	6.5	3.7	10.1	15.6	47.5	9.5	10.8	236.2	33.1
1915	55.5	11.1	37.8	196.4	8.7	4.3	11.9	13.2	51.5	11.9	11.9	221.0	32.5
Average (10 yrs)													
1902-1911	51.3	13.0	50.7	192.8	27.7	3.6	8.0	9.4	40.1	10.9	15.8	219.0	†33.1
1892-1901	73.2	28.0	39.2	180.2	60.5	4.1	10.1	10.3	35.5	12.9	15.6	198.2	.....
1882-1891	81.6	50.9	67.2	150.4	60.5	2.4	9.4	6.2	17.7	14.0	12.2	207.1	.....
Average (36 years)													
1882-1917	63.8	25.5	49.4	178.2	41.2	3.6	9.2	9.7	35.2	12.2	15.0	213.2	‡33.8

*Including Sugar Beets.

† Average for 5 years.

‡ Average for 11 years.

MARKET PRICES.

TABLE XVIII.—The following table shows by counties the average prices of agricultural products for 1917, together with the average price for 1915 and 1916, and the annual averages for various periods.

Counties and Districts.	Fall Wheat, per bush.	Spring Wheat, per bush.	Barley, per bush.	Oats, per bush.	Peas, per bush.	Beans, per bush.	Rye, per bush.	Buckwheat, per bush.	Corn (in ear) per bush.	Hay, per ton.	Potatoes, per bush.
	cts.	cts.	cts.	cts.	cts.	\$ c.	cts.	cts.	cts.	\$ c.	cts.
Algoma.....	210.8	209.0	124.6	83.0	285.2	7 00	160.0	135.0	125.0	13 23	134.0
Brant.....	210.7	210.0	121.8	77.9	261.0	6 90	170.6	149.6	112.4	12 52	140.1
Bruce.....	208.6	203.6	124.5	78.2	337.1	7 50	163.1	137.4	140.0	10 11	107.1
Carleton.....	206.5	213.8	127.9	82.4	308.8	6 56	147.5	137.9	118.3	11 24	119.9
Dufferin.....	205.1	205.3	124.7	74.9	330.0	6 75	167.0	140.5	125.0	10 00	115.7
Dundas.....	205.3	208.0	135.6	83.9	247.5	6 35	146.4	141.4	129.2	10 83	111.3
Durham.....	213.1	209.8	128.6	76.8	329.8	6 66	171.3	149.3	116.7	12 57	129.5
Elgin.....	210.6	210.0	132.3	78.3	285.0	7 02	155.0	150.4	111.8	11 58	146.0
Essex.....	209.9	210.0	126.0	74.9	250.0	7 52	157.5	160.5	119.4	14 21	140.7
Frontenac.....	213.4	212.7	137.1	79.0	285.4	6 39	156.0	145.0	143.3	12 19	125.7
Glengarry.....	210.0	207.2	133.5	83.9	274.6	6 30	.....	130.3	114.0	11 14	132.4
Grenville.....	210.0	212.3	154.3	84.4	247.7	6 39	162.3	142.0	158.3	12 00	114.7
Grey.....	209.0	208.3	121.9	76.7	350.8	7 21	163.3	144.3	123.3	10 56	113.0
Haldimand.....	208.1	210.0	120.9	77.9	294.4	7 15	161.2	155.4	116.7	11 38	140.3
Haliburton.....	215.1	209.5	136.0	84.4	286.5	6 90	143.8	135.6	140.0	14 85	103.5
Halton.....	212.1	207.6	127.0	77.0	327.0	7 63	171.3	147.8	133.3	13 17	135.7
Hastings.....	209.4	206.1	132.4	80.1	292.4	6 93	155.6	142.5	142.1	11 60	127.0
Huron.....	209.6	206.7	118.6	74.6	315.1	6 78	143.3	134.4	125.9	10 57	117.4
Kent.....	209.6	209.7	132.4	80.1	300.0	6 97	173.0	150.4	130.3	11 22	138.1
Lambton.....	208.0	208.8	117.0	72.0	283.3	7 12	160.0	140.0	110.0	11 20	132.9
Lanark.....	210.0	214.6	136.4	81.1	293.9	6 41	153.4	128.4	126.2	11 85	109.8
Leeds.....	213.3	215.6	137.0	83.0	268.6	6 28	159.0	143.9	125.8	12 68	115.2
Lennox & Addington.....	207.2	210.1	130.6	76.3	281.2	6 57	154.4	144.3	118.5	10 36	121.3
Lincoln.....	211.1	215.9	122.6	78.3	318.8	7 69	160.0	145.0	142.0	12 39	142.2
Manitoulin.....	200.0	200.0	127.5	72.2	317.2	6 50	137.5	150.0	125.0	9 84	107.3
Middlesex.....	208.9	213.1	118.2	73.6	290.8	7 19	150.0	146.4	153.8	11 49	134.7
Muskoka.....	208.2	210.7	139.2	84.7	298.5	6 00	165.0	150.0	125.0	12 54	112.2
Nipissing.....	216.9	215.4	129.1	85.8	328.3	6 81	156.0	139.2	110.0	12 47	126.2
Norfolk.....	210.5	212.5	124.6	77.8	285.0	7 50	168.1	150.4	119.7	12 03	134.0
Northumberland.....	209.4	207.2	131.1	81.4	310.5	6 80	166.4	146.8	120.0	11 85	120.2
Ontario.....	208.2	207.8	128.0	77.8	320.2	6 75	162.9	143.1	124.2	12 18	117.9
Oxford.....	209.6	215.6	121.2	79.5	261.9	7 43	161.0	149.6	120.7	12 51	143.5
Parry Sound.....	200.0	207.8	126.9	81.3	284.2	6 00	151.0	125.0	125.0	12 85	115.6
Peel.....	210.4	204.7	127.7	76.6	346.5	6 58	163.0	146.7	125.0	13 18	130.0
Perth.....	210.0	206.7	117.9	75.4	283.0	7 55	150.0	127.5	114.3	10 86	132.4
Peterborough.....	212.0	208.8	131.0	79.4	330.8	6 51	157.5	138.8	140.0	15 08	129.3
Prescott.....	212.5	216.5	142.8	86.3	344.4	6 69	162.5	150.4	142.8	10 72	132.1
Prince Edward.....	209.9	206.8	125.5	76.4	285.2	6 62	162.0	148.6	122.5	11 03	119.3
Rainy R. & Kenora.....	207.1	209.5	134.3	90.8	316.7	6 00	175.0	140.0	100.0	20 71	102.1
Renfrew.....	211.6	214.4	114.5	76.6	347.4	6 47	149.2	121.7	127.8	11 01	117.2
Russell.....	210.0	210.0	142.0	82.7	334.4	6 06	150.0	139.6	118.3	11 08	135.2
Simcoe.....	208.7	208.5	124.5	74.2	340.2	6 96	163.6	139.9	100.0	12 85	107.3
Stormont.....	220.7	210.6	139.4	85.6	326.4	6 53	166.7	143.1	120.5	10 80	131.2
Sudbury.....	208.3	212.2	141.6	88.2	315.9	6 00	144.0	145.0	100.0	12 77	125.0
Thunder Bay.....	200.0	204.1	129.4	87.5	348.0	.....	168.0	140.0	.....	20 00	120.8
Timiskaming.....	210.0	203.6	132.3	84.8	340.2	6 00	160.0	140.0	.....	13 24	136.0
Victoria.....	207.1	204.1	125.7	75.5	307.0	7 04	160.6	137.8	140.0	12 71	110.6
Waterloo.....	212.9	212.0	123.3	76.4	300.0	7 40	167.5	135.7	126.7	13 13	140.4
Welland.....	214.7	208.1	126.8	77.9	266.7	8 59	148.8	155.5	129.4	13 66	159.0
Wellington.....	206.7	202.9	125.8	77.6	314.4	7 08	149.0	136.2	115.0	11 34	121.7
Wentworth.....	213.6	211.0	124.1	80.4	300.0	7 38	164.0	139.4	127.5	12 91	147.4
York.....	212.1	208.4	131.3	77.1	326.5	7 16	167.1	150.8	118.9	13 94	130.0
The Province:											
1917.....	209.8	209.7	125.7	77.9	321.0	6 91	162.6	142.9	124.0	11 81	123.2
1916.....	161.3	162.2	101.9	66.0	210.5	5 46	118.8	109.0	74.3	10 60	130.1
1915.....	97.1	98.6	56.0	39.5	161.6	3 11	78.9	71.5	45.4	14 51	81.4
Averages (10 years)											
1902-1911.....	83.6	81.2	50.1	36.7	74.8	1 48	60.2	52.4	38.2	9 97	51.4
1892-1901.....	67.8	67.5	38.5	27.9	53.5	93	44.9	38.7	25.0	7 97	33.6
1882-1891.....	90.0	89.6	54.5	34.3	61.6	1 16	60.0	41.5	.....	10 34	45.0
Average (36 years)											
1882-1917.....	86.6	85.4	53.2	37.1	64.5	1 66	62.9	54.4	*36.5	10 06	48.5

*Average for 26 years, 1892-1917.

HORSES AND

TABLE XIX.—Showing by County Municipalities the number and value of Horses and Cattle June 30th, 1917, together with the totals

Counties and Districts.	Horses all ages.				Cattle.	
	Number on hand.	Value.	Horses sold.		Milch cows on Hand.	
			Number.	Value.	Number.	Value.
		\$		\$		\$
Algoma	3,356	453,060	294	35,280	4,596	331,464
Brant	9,841	1,289,171	702	96,876	13,850	1,213,122
Bruce	28,181	3,607,168	4,162	603,490	30,442	2,388,479
Carleton	18,983	2,619,654	1,909	269,169	36,872	2,725,578
Dufferin	13,091	1,675,648	1,856	261,696	14,181	1,132,592
Dundas	9,587	1,207,962	805	102,235	26,424	1,880,068
Durham	15,289	2,002,859	1,766	245,474	16,956	1,260,848
Elgin	19,257	2,464,896	2,324	311,416	27,449	2,293,364
Essex	24,075	3,129,750	2,358	308,898	18,358	1,349,497
Frontenac	10,965	1,304,835	748	89,760	24,988	1,675,945
Glengarry	10,395	1,268,190	1,095	140,160	24,209	1,681,315
Grenville	7,806	983,556	704	93,632	17,889	1,301,067
Grey	32,558	4,167,424	4,251	578,136	38,257	2,881,135
Haldimand	13,813	1,781,877	1,245	178,035	14,876	1,185,468
Halliburton	1,763	225,664	202	24,240	3,250	211,575
Halton	9,300	1,190,400	740	101,380	10,910	896,257
Hastings	19,779	2,511,933	1,809	222,507	40,207	2,661,703
Huron	34,468	4,618,712	5,038	750,662	34,910	2,809,557
Kent	28,965	3,765,450	2,713	371,681	22,728	1,750,511
Lambton	25,998	3,327,744	3,565	509,795	29,873	2,368,331
Lanark	12,207	1,586,910	1,394	190,978	23,186	1,650,843
Leeds	11,968	1,436,160	728	82,264	34,209	2,316,633
Lennox & Addington.....	11,100	1,276,500	846	98,982	21,542	1,411,001
Lincoln	9,500	1,187,500	799	95,880	9,032	735,205
Manitoulin	2,716	339,500	302	38,052	3,814	280,024
Middlesex	35,704	4,641,520	4,993	709,006	47,221	3,898,094
Muskoka	3,605	504,700	245	31,850	5,579	384,170
Nipissing	2,504	383,112	266	36,974	4,528	298,984
Norfolk	16,171	1,989,033	1,407	175,875	19,761	1,541,951
Northumberland	18,439	2,249,558	1,911	225,498	24,722	1,766,881
Ontario	22,801	3,032,533	2,888	410,096	24,577	2,104,522
Oxford	22,871	2,950,359	2,324	323,036	48,248	3,893,614
Parry Sound.....	4,049	579,007	255	32,385	6,200	446,276
Peel	14,436	1,905,552	1,812	260,928	18,558	1,461,814
Perth	26,129	3,501,286	3,445	502,970	34,820	2,898,069
Peterborough	12,939	1,662,592	1,328	169,984	19,450	1,331,936
Prescott	8,450	1,098,500	907	120,631	20,397	1,371,086
Prince Edward.....	9,559	1,137,521	640	77,440	14,927	1,041,158
Rainy River & Kenora...	2,331	398,601	235	42,065	2,350	181,655
Renfrew	15,834	2,248,428	1,585	231,410	25,465	1,573,482
Russell	7,670	1,004,770	770	105,490	17,160	1,156,584
Simcoe	37,104	4,971,936	3,850	539,000	38,788	2,850,142
Stormont	7,991	998,875	780	102,960	23,855	1,631,205
Sudbury	2,537	385,624	296	39,664	4,669	324,402
Thunder Bay	1,728	293,760	128	16,384	2,704	245,280
Timiskaming	1,650	273,900	165	24,750	1,702	154,201
Victoria	14,792	1,908,168	1,622	222,214	17,844	1,328,843
Waterloo	14,162	1,770,250	1,478	186,228	17,744	1,432,296
Welland	10,501	1,323,126	713	87,699	11,981	925,412
Wellington	26,622	3,460,860	2,846	398,440	28,291	2,390,872
Wentworth	13,054	1,749,236	964	127,248	14,414	1,217,406
York	27,229	3,594,228	2,986	441,928	30,372	2,532,417
The Province:						
1917	765,873	99,439,558	83,194	11,442,831	1,069,338	80,774,341
1916	775,732	101,434,391	78,119	10,684,992	1,045,029	69,337,793
1915	779,131	107,982,037	75,527	11,003,822	1,022,518	62,196,964
1914	774,544	112,576,793	80,872	12,480,960	1,006,703	57,396,788
1913	751,726	113,240,047	96,841	15,507,934	1,032,039	52,176,881

CATTLE.

on hand July 1, 1917, and the number and value of those sold or slaughtered in the year ending for the Province for the past five years.

Cattle.						Counties and Districts.
Other cattle on hand.		Total on hand.		Sold or slaughtered.		
Number.	Value.	Number.	Value	Number.	Value.	
	\$		\$		\$	
7,532	233,793	12,128	565,257	3,201	144,909	Algoma.
20,625	888,731	34,475	2,101,853	11,770	746,453	Brant.
78,317	3,588,485	108,759	5,976,964	37,711	2,729,522	Bruce.
48,087	1,740,749	84,959	4,466,327	25,148	1,244,072	Carleton.
34,388	1,485,905	48,572	2,618,497	14,921	990,307	Dufferin.
17,828	553,738	44,252	2,433,806	9,290	429,198	Dundas.
35,448	1,468,965	52,404	2,729,813	16,878	1,110,572	Durham.
42,885	1,981,287	70,334	4,274,651	27,547	1,683,122	Elgin.
28,857	1,134,946	47,215	2,484,443	16,952	855,228	Essex.
25,629	793,730	50,617	2,469,675	13,379	586,803	Frontenac.
19,704	645,503	43,913	2,326,818	9,148	378,178	Glengarry.
16,580	544,819	34,469	1,845,886	8,961	375,466	Grenville.
88,608	3,815,460	126,865	6,696,595	40,744	2,797,076	Grey.
25,294	1,080,307	40,170	2,265,775	13,935	835,264	Haldimand.
6,433	201,417	9,683	412,992	2,877	117,468	Haliburton.
22,229	1,015,865	33,139	1,912,122	10,797	756,330	Halton.
50,978	1,364,171	91,185	4,025,874	25,898	978,426	Hastings.
92,285	4,212,810	127,195	7,022,367	43,081	3,023,855	Huron.
56,526	2,541,409	79,254	4,291,920	28,649	1,873,645	Kent.
73,086	3,376,573	102,959	5,744,904	36,604	2,430,506	Lambton.
45,139	1,565,872	68,325	3,216,715	20,370	1,037,240	Lanark.
29,702	832,844	63,911	3,149,477	16,686	669,943	Leeds.
27,361	879,109	48,903	2,290,110	13,589	560,546	Lennox & Addington.
10,913	433,464	19,945	1,168,669	7,511	414,757	Lincoln.
9,134	287,173	12,948	567,197	3,993	214,704	Manitoulin.
95,644	4,372,844	142,865	8,270,938	53,405	3,179,734	Middlesex.
9,674	315,372	15,253	699,542	4,459	189,597	Muskoka.
8,074	230,836	12,602	529,820	3,146	139,053	Nipissing.
24,239	843,032	44,000	2,384,983	15,637	707,574	Norfolk.
38,409	1,315,508	63,131	3,082,389	20,059	998,336	Northumberland.
52,590	2,236,127	77,167	4,340,656	24,962	1,800,259	Ontario.
43,173	1,846,509	91,421	5,740,123	27,902	1,666,307	Oxford.
13,581	474,656	19,781	920,932	5,557	271,293	Parry Sound.
30,487	1,396,609	49,045	2,858,423	17,613	1,177,077	Peel.
67,640	2,930,841	102,460	5,828,910	33,984	2,199,784	Perth.
35,272	1,130,468	54,722	2,462,404	15,000	749,550	Peterborough.
18,863	477,611	39,260	1,848,697	9,701	343,706	Prescott.
14,092	467,150	29,019	1,508,308	8,632	331,641	Prince Edward.
4,454	158,072	6,804	339,727	2,256	116,635	Rainy River & Kenora.
50,830	1,534,558	76,295	3,108,040	21,184	967,897	Renfrew.
16,840	511,936	34,000	1,668,520	9,820	397,317	Russell.
82,666	3,095,842	121,454	5,945,984	37,533	2,345,062	Simcoe.
15,600	532,428	39,455	2,163,633	7,488	313,223	Stormont.
7,001	192,528	11,670	516,930	3,803	172,276	Sudbury.
3,944	134,806	6,648	380,086	1,832	73,188	Thunder Bay.
2,481	82,394	4,183	236,595	1,485	83,962	Timiskaming.
42,589	1,648,620	60,433	2,977,463	18,453	1,054,589	Victoria.
28,840	1,101,688	46,584	2,533,984	20,121	1,403,842	Waterloo.
16,081	628,124	28,062	1,553,536	9,507	480,959	Welland.
63,955	2,626,632	92,246	5,017,504	33,639	2,521,243	Wellington.
20,009	858,786	34,423	2,076,192	13,514	707,863	Wentworth.
37,675	1,724,385	68,047	4,256,802	22,852	1,518,058	York.
1,758,271	69,535,487	2,827,609	150,309,828	903,184	52,893,615	The Province:
1,689,738	58,986,733	2,734,767	128,324,526	878,540	46,987,563	1917.
1,652,228	53,166,372	2,674,746	115,363,336	875,394	43,678,233	1916.
1,597,925	49,238,360	2,604,628	106,635,148	911,794	42,978,531	1915.
1,596,806	43,582,141	2,628,845	95,759,022	880,303	38,751,801	1914.
						1913.

SHEEP, SWINE

TABLE XX.—Showing by County Municipalities the number and value of Sheep, Swine and year ending June 30, 1917, together with the

Counties and Districts.	Sheep and Lambs.				Swine.	
	Number on hand.	Value.	Sold or slaughtered.		Number on hand.	Value.
			Number.	Value.		
Algoma	10,175	\$2,621	4,133	\$27,278	3,732	\$49,076
Brant	10,165	130,010	5,374	56,158	22,491	312,400
Bruce	39,911	423,057	19,956	176,810	53,479	703,249
Carleton	28,570	281,980	13,829	124,738	27,064	361,846
Dufferin	26,847	303,105	12,540	123,143	30,718	408,242
Dundas	5,736	55,639	3,117	27,211	23,558	311,672
Durham	27,722	309,100	11,781	121,698	30,045	404,406
Elgin	19,851	209,428	11,483	106,447	50,461	653,470
Essex	21,506	200,436	9,688	76,923	113,930	1,225,887
Frontenac	17,578	154,159	10,487	84,211	19,773	256,654
Glengarry	7,070	66,670	3,616	28,783	15,737	220,318
Grenville	10,856	101,829	6,113	50,004	16,248	215,286
Grey	64,035	696,060	33,175	311,845	61,646	791,535
Haldimand	18,789	199,163	9,057	93,106	23,587	308,046
Haliburton	5,730	47,903	2,225	15,864	2,069	27,869
Halton	10,462	122,196	4,916	50,438	18,249	235,119
Hastings	30,854	265,961	14,810	111,075	45,683	602,559
Huron	27,075	312,987	12,681	125,796	70,105	880,519
Kent	24,298	261,932	11,631	118,404	108,300	1,240,035
Lambton	27,290	291,184	14,040	134,784	61,170	765,848
Lanark	32,160	319,992	16,275	144,685	21,750	272,310
Leeds	14,071	128,046	6,565	51,667	25,749	329,330
Lennox and Addington	13,324	106,592	6,179	45,848	21,702	289,505
Lincoln	5,676	66,239	3,133	29,732	13,709	189,184
Manitoulin	21,471	190,662	9,183	68,413	4,726	53,120
Middlesex	25,173	331,025	12,722	147,957	60,226	844,369
Muskoka	11,850	100,251	5,656	41,063	2,807	38,007
Nipissing	7,065	58,357	3,374	23,416	4,902	61,324
Norfolk	14,370	150,310	7,090	62,534	33,000	430,650
Northumberland	17,033	186,000	8,031	69,709	34,777	472,272
Ontario	35,700	420,189	17,380	168,934	53,847	731,242
Oxford	9,530	103,401	5,027	47,907	51,546	711,850
Parry Sound	18,510	157,520	8,197	59,100	5,885	73,739
Peel	11,451	135,351	5,522	52,735	25,467	333,618
Perth	14,186	165,551	6,877	69,733	66,672	888,071
Peterborough	16,581	161,996	6,938	59,806	22,774	284,447
Prescott	4,319	39,217	3,670	31,929	13,725	192,699
Prince Edward	8,662	92,597	4,275	33,944	15,955	212,202
Rainy River and Kenora	1,830	18,849	1,213	11,584	2,537	33,285
Renfrew	54,117	470,818	23,231	191,888	23,908	327,301
Russell	3,868	34,503	2,064	17,565	14,680	195,538
Simcoe	56,634	578,799	26,141	242,850	83,812	1,034,240
Stormont	3,874	38,508	2,280	17,693	18,150	237,947
Sudbury	5,418	48,762	2,282	17,594	4,568	63,038
Thunder Bay	1,010	11,070	392	2,909	3,730	46,588
Timiskaming	1,425	16,060	514	5,140	2,023	29,880
Victoria	26,782	253,626	12,033	103,484	35,084	467,319
Waterloo	6,856	73,222	3,331	33,044	40,338	522,780
Welland	7,595	68,203	4,193	32,957	13,431	178,229
Wellington	38,260	506,562	17,967	201,410	64,660	859,978
Wentworth	10,425	122,702	5,226	55,709	22,947	321,487
York	23,240	275,626	11,963	133,148	57,416	764,781
The Province:						
1917	956,986	9,946,030	463,576	4,240,803	1,664,639	21,464,366
1916	908,066	7,386,710	475,406	3,588,522	1,735,254	18,790,755
1915	908,095	6,403,907	489,320	3,289,701	1,769,295	17,562,726
1914	922,375	6,155,451	512,066	3,219,409	1,770,533	17,951,258
1913	996,155	6,242,672	534,311	3,163,752	1,618,734	15,393,192

AND POULTRY.

Poultry on hand on July 1, 1917, and the number and value of those sold or slaughtered in the totals for the Province for the past five years.

Swine.		Poultry of all classes.				Counties and Districts.
Sold or slaughtered.		Number on hand.	Value.	Sold or slaughtered.		
Number.	Value.			Number.	Value.	
	\$		\$		\$	
5,872	96,829	58,660	39,544	30,342	21,846	Algoma.
31,646	641,781	152,300	94,176	77,690	54,383	Brant.
77,549	1,565,714	477,022	257,949	230,238	145,050	Bruce.
34,933	681,194	319,906	217,040	189,571	142,178	Carleton.
37,915	763,608	183,984	117,242	91,462	64,023	Dufferin.
27,078	467,908	227,472	143,967	102,383	69,620	Dundas.
41,301	833,367	284,404	187,085	133,802	96,337	Durham.
69,165	1,305,835	383,708	237,043	200,323	124,200	Elgin.
115,813	2,173,810	662,460	372,128	303,506	182,104	Essex.
23,996	437,687	184,209	126,880	110,973	74,352	Frontenac.
17,834	346,871	174,580	115,119	95,849	64,219	Glengarry.
19,260	327,998	163,063	106,106	88,054	60,757	Grenville.
85,687	1,723,166	515,397	303,434	244,044	153,748	Grey.
34,266	656,537	237,517	147,411	132,602	86,191	Haldimand.
3,254	59,874	27,982	17,252	12,125	7,518	Haliburton.
25,473	501,054	161,401	115,256	99,542	74,657	Halton.
54,566	1,049,304	344,404	217,092	163,225	106,096	Hastings.
102,223	2,019,926	658,107	399,111	286,802	180,685	Huron.
118,408	2,312,508	640,457	341,404	292,148	169,446	Kent.
75,825	1,477,829	545,719	331,452	268,464	166,448	Lambton.
27,505	505,542	193,621	120,932	89,695	60,993	Lanark.
32,418	582,876	200,529	123,072	104,804	67,075	Leeds.
27,845	536,852	206,295	134,265	105,800	71,944	Lennox & Addington.
22,478	410,448	181,511	118,966	117,364	84,502	Lincoln.
5,090	85,054	40,098	24,706	21,499	13,544	Manitoulin.
84,429	1,597,397	705,099	451,597	336,386	225,379	Middlesex.
5,210	83,256	64,259	38,638	35,660	22,109	Muskoka.
4,775	84,470	46,305	27,709	24,520	16,183	Nipissing.
46,417	862,428	309,931	180,733	156,567	92,375	Norfolk.
47,256	928,108	322,388	214,598	151,170	105,819	Northumberland.
66,921	1,394,634	358,928	255,054	185,286	138,965	Ontario.
69,542	1,415,875	395,159	244,450	173,123	110,799	Oxford.
7,900	127,585	62,811	40,387	31,840	20,696	Parry Sound.
33,112	652,306	214,014	159,093	137,197	109,758	Peel.
91,436	1,875,352	458,223	266,203	202,642	127,664	Perth.
30,451	577,351	223,565	147,124	107,112	72,836	Peterborough.
13,204	299,071	151,590	99,928	84,497	54,923	Prescott.
20,964	394,123	156,718	98,800	78,009	52,266	Prince Edward.
3,332	53,812	47,289	29,205	20,891	14,415	Rainy River and Kenora.
22,876	439,219	228,386	147,703	109,491	71,169	Renfrew.
16,160	292,173	123,807	78,849	74,419	51,349	Russell.
105,392	2,113,110	570,359	352,651	270,937	184,237	Simcoe.
21,572	416,340	161,745	104,068	76,999	51,589	Stormont.
4,293	85,602	51,777	32,935	29,926	19,452	Sudbury.
3,900	60,216	45,101	28,458	20,627	14,233	Thunder Bay.
2,555	39,347	30,736	19,659	15,060	10,542	Timiskaming.
42,895	845,032	230,940	151,032	107,859	71,187	Victoria.
53,361	1,074,157	231,437	137,297	103,632	67,361	Waterloo.
17,918	319,299	198,094	127,723	123,219	82,557	Welland.
93,838	1,848,609	374,800	240,453	190,841	137,406	Wellington.
31,562	631,240	204,121	137,035	115,695	86,771	Wentworth.
79,328	1,534,997	413,904	297,181	250,619	200,495	York.
2,137,999	41,609,181	13,606,292	8,517,195	6,806,531	4,554,451	The Province :
2,105,621	33,671,966	14,377,844	7,933,157	6,774,884	4,226,038	1917.
2,110,936	31,628,772	14,273,091	7,670,326	6,764,069	4,161,695	1916.
1,984,105	30,275,538	14,175,214	7,551,428	6,575,434	4,062,797	1915.
2,078,462	28,378,551	13,511,383	6,956,952	6,325,007	3,848,973	1914.
						1913.

WOOL CLIP, POULTRY ON HAND AND LIVE STOCK SOLD.

TABLE XXI. Showing by County Municipalities the number of pounds of wool, the number of turkeys, geese, ducks and other fowls on hand June 30th, 1917; also the value of all live stock sold or killed in the year ending June 30, 1917, together with the totals for the Province for the past five years.

Counties and Districts.	Wool Clip.	Poultry on Hand.				Total value of Live Stock sold or killed.
		Turkeys.	Geese.	Ducks.	Other fowl.	
	lbs.	No.	No.	No.	No.	\$
Algoma	38,592	3,326	1,086	618	53,630	326,142
Brant	42,796	521	3,342	4,590	143,847	1,595,651
Bruce	146,439	20,198	17,213	23,123	416,488	5,220,586
Carleton	97,832	10,659	13,999	10,083	285,165	2,461,351
Dufferin	107,236	2,419	14,497	6,607	160,461	2,202,777
Dundas	23,907	13,653	6,206	5,168	202,445	1,096,172
Durham	111,320	5,952	10,014	11,432	257,006	2,407,948
Elgin	80,903	16,035	7,460	10,770	349,443	3,531,020
Essex	88,641	11,429	15,542	24,409	611,080	3,596,963
Frontenac	68,836	17,895	3,910	5,831	156,573	1,272,813
Glengarry	21,847	14,446	3,204	2,861	154,069	958,211
Grenville	37,532	8,141	4,338	3,317	147,267	907,857
Grey	238,588	17,763	20,642	21,413	455,579	5,563,971
Haldimand	70,889	6,193	5,899	8,941	216,484	1,849,133
Haliburton	20,211	2,132	550	577	24,723	224,964
Halton	45,490	2,937	5,429	5,756	147,279	1,483,859
Hastings	106,874	16,606	7,546	8,116	312,136	2,467,408
Huron	105,206	17,789	19,650	34,389	586,279	6,100,924
Kent	101,151	9,298	12,788	29,838	588,533	4,845,684
Lambton	116,214	30,244	14,215	20,535	480,725	4,719,362
Lanark	106,266	9,715	3,640	4,019	176,247	1,939,438
Leeds	46,279	8,033	2,292	4,769	185,435	1,453,825
Lennox & Addington ..	43,985	11,708	2,870	6,123	185,594	1,314,172
Lincoln	22,886	3,548	2,937	5,256	169,770	1,035,319
Manitoulin	91,711	2,325	1,348	1,225	35,200	419,767
Middlesex	115,855	27,475	14,535	30,463	632,626	5,859,473
Muskoka	36,840	1,204	469	1,415	61,171	367,875
Nipissing	26,032	906	855	1,297	43,247	300,096
Norfolk	55,441	8,139	5,897	11,197	284,698	1,900,786
Northumberland	71,901	12,933	6,433	6,593	296,429	2,327,470
Ontario	166,918	5,255	16,389	13,651	323,633	3,912,888
Oxford	40,059	3,262	7,318	13,991	370,588	3,563,924
Parry Sound	72,548	2,882	1,417	1,014	57,498	511,059
Peel	50,143	6,505	10,053	10,244	187,212	2,252,804
Perth	57,610	6,224	15,169	21,466	415,364	4,775,503
Peterborough	59,976	13,760	6,649	7,013	196,143	1,629,527
Prescott	18,252	9,398	4,401	2,710	135,081	850,260
Prince Edward	28,041	6,794	2,670	4,951	142,303	889,414
Rainy River & Kenora ..	7,252	1,678	796	1,027	43,788	238,511
Renfrew	167,154	8,825	7,732	4,525	207,304	1,901,583
Russell	12,771	3,140	5,160	4,680	110,827	863,894
Simcoe	229,431	20,134	24,676	18,475	507,074	5,424,259
Stormont	14,878	10,972	2,172	3,410	145,191	901,805
Sudbury	23,567	1,275	877	894	48,731	334,588
Thunder Bay	3,888	1,322	459	720	42,600	166,930
Timiskaming	5,753	315	339	330	29,752	163,741
Victoria	106,155	6,611	11,586	7,725	205,018	2,296,506
Waterloo	25,170	997	4,240	6,106	220,094	2,764,632
Welland	26,950	3,056	2,263	8,223	184,552	1,003,471
Wellington	156,072	4,159	17,165	13,365	340,111	5,107,108
Wentworth	40,129	1,163	4,562	6,207	192,189	1,608,831
York	119,513	7,866	14,760	18,805	372,473	3,828,626
The Province:						
1917	3,719,930	439,215	389,659	480,263	12,297,155	114,740,881
1916	3,380,251	557,929	408,046	586,705	12,825,164	99,159,081
1915	3,333,768	674,494	416,414	545,813	12,636,370	93,762,233
1914	3,370,225	744,096	425,300	586,654	12,419,164	93,017,235
1913	3,647,245	699,861	389,173	497,734	11,924,615	89,651,116

FARM PROPERTY, IMPLEMENTS AND LIVE STOCK.

TABLE XXII.—Showing by County Municipalities of Ontario the value of farm lands, buildings, implements and live stock for the year 1917, together with the totals for the Province for the past five years.

Counties and Districts.	Land.	Buildings.	Implements.	Live Stock on hand.	Total.
	\$	\$	\$	\$	\$
Algoma	3,592,049	1,302,507	478,982	1,189,558	6,563,096
Brant	10,990,963	6,060,674	1,554,750	3,927,610	22,533,997
Bruce	27,234,548	12,475,036	3,325,295	10,968,387	54,003,266
Carleton	22,477,491	8,850,536	2,830,778	7,946,853	42,105,658
Dufferin	11,404,163	5,747,260	1,497,493	5,122,732	23,771,648
Dundas	10,384,059	5,191,534	1,697,402	4,153,046	21,426,041
Durham	12,944,941	7,075,686	1,800,088	5,633,263	27,453,978
Elgin	21,200,388	10,539,894	3,018,214	7,839,488	42,597,984
Essex	33,274,268	12,042,711	3,623,601	7,412,644	56,353,224
Frontenac	10,932,355	4,874,691	1,500,712	4,312,203	21,619,961
Glengarry	11,123,235	5,211,454	1,537,546	3,997,115	21,869,350
Grenville	7,148,344	3,728,725	1,182,518	3,252,663	15,312,250
Grey	27,124,700	14,692,616	4,037,783	12,655,048	58,510,147
Haldimand	11,291,965	6,370,440	1,928,391	4,702,272	24,293,068
Haliburton	1,543,820	552,953	232,833	731,680	3,061,286
Halton	13,402,986	5,373,001	1,418,097	3,575,093	23,769,177
Hastings	19,330,932	8,627,819	2,842,939	7,623,419	38,425,109
Huron	29,718,462	15,912,848	4,063,372	13,233,696	62,928,378
Kent	37,408,876	14,012,505	4,335,737	9,900,741	65,657,859
Lambton	28,324,112	12,030,229	3,535,354	10,461,132	54,350,827
Lanark	12,253,371	5,124,756	1,562,426	5,516,859	24,457,412
Leeds	11,783,290	5,982,895	1,793,850	5,166,085	24,726,120
Lennox & Addington	10,141,623	5,134,922	1,604,662	4,096,972	20,978,179
Lincoln	19,183,961	7,175,476	1,691,708	2,730,558	30,781,703
Manitoulin	1,952,743	752,879	284,038	1,175,185	4,164,845
Middlesex	38,629,790	17,859,098	4,826,459	14,539,449	75,854,796
Muskoka	3,319,953	1,518,410	517,997	1,381,138	6,737,498
Nipissing	3,165,857	1,031,684	522,001	1,060,322	5,779,864
Norfolk	15,158,659	7,511,917	2,238,933	5,135,709	30,045,218
Northumberland	15,387,967	8,426,934	2,238,300	6,204,817	32,258,018
Ontario	20,942,889	10,112,237	2,577,150	8,779,674	42,411,950
Oxford	24,663,874	12,485,397	3,562,053	9,750,183	50,461,507
Parry Sound	3,359,736	1,467,239	577,505	1,771,585	7,176,065
Peel	15,434,395	7,716,922	1,729,261	5,392,037	30,272,615
Perth	23,827,433	13,163,750	3,372,970	10,650,021	51,014,174
Peterborough	13,235,288	5,669,571	1,496,519	4,718,563	25,119,941
Prescott	12,775,802	5,157,615	1,555,169	3,279,041	22,767,627
Prince Edward	8,208,626	4,796,884	1,559,637	3,049,428	17,614,575
Rainy River & Kenora	3,075,478	796,435	337,426	819,667	5,029,006
Renfrew	17,763,803	6,531,730	2,147,713	6,302,290	32,745,536
Russell	10,814,422	4,170,052	1,387,814	2,982,180	19,354,468
Simcoe	32,359,760	15,996,496	4,434,924	12,883,610	65,674,790
Stormont	8,528,008	4,261,895	1,316,294	3,543,031	17,649,228
Sudbury	3,665,925	1,068,074	520,758	1,047,289	6,302,046
Thunder Bay	4,278,895	849,787	366,736	759,962	6,255,380
Timiskaming	3,145,037	646,754	360,343	576,094	4,728,228
Victoria	14,563,760	5,692,937	1,674,725	5,757,608	27,689,030
Waterloo	14,836,301	7,659,856	1,929,014	5,037,533	29,462,704
Welland	12,256,139	5,822,303	1,644,224	3,250,817	22,973,483
Wellington	23,343,009	12,987,433	3,097,670	10,085,357	49,513,469
Wentworth	19,710,344	7,935,931	2,047,179	4,406,652	34,100,106
York	34,808,191	14,202,667	3,163,710	9,188,618	61,363,186
The Province:					
1917	807,426,986	370,384,055	104,581,053	289,676,977	1,572,069,071
1916	794,676,866	357,313,850	98,020,295	263,869,539	1,513,880,550
1915	794,393,564	352,628,031	95,049,350	254,982,332	1,497,053,277
1914	790,538,706	347,348,643	91,703,876	250,870,078	1,480,461,303
1913	782,993,853	345,303,335	89,702,273	237,591,885	1,455,591,346

PART II.—CHATTEL MORTGAGES.

Table showing by County Municipalities of Ontario the total number and amount of Chattel Mortgages on record and undischarged on December 31st, 1917, against (1) all occupations; (2) farmers; together with totals for the Province for the past five years.

Counties and Districts.	Chattel mortgages against all occupations.				Chattel mortgages against farmers.			
	To secure existing debt.		For future indorsation.		To secure existing debt.		For future indorsation	
	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount
		\$		\$		\$		\$
Algoma	149	108,553	1	(a)35,000	91	29,778	..	.....
Brant	116	127,654	..	.....	41	30,483	..	.....
Bruce	187	85,103	13	6,199	115	45,801	11	3,906
Carleton	221	*391,278	1	15,000	34	37,566	..	.....
Dufferin	46	27,733	1	7,500	25	10,896	..	.....
Elgin	263	260,432	..	.....	118	64,463	..	.....
Essex	308	166,013	1	200	199	77,149	1	200
Frontenac	208	108,942	..	.....	138	42,780	..	.....
Grey	317	194,369	..	.....	199	57,791	..	.....
Haldimand	88	67,314	..	.....	51	22,010	..	.....
Haliburton	54	18,702	..	.....	43	10,035	..	.....
Halton	43	34,231	..	.....	23	15,247	..	.....
Hastings	370	*198,156	..	.....	169	75,197	..	.....
Huron	162	209,050	..	.....	79	118,527	..	.....
Kenora	41	140,083	..	.....	7	3,264	..	.....
Kent	341	278,131	..	.....	256	133,107	..	.....
Lambton	223	138,778	..	.....	100	62,644	..	.....
Lanark	93	73,569	..	.....	50	35,225	..	.....
Leeds and Grenville	228	158,181	..	.....	149	84,826	..	.....
Lennox and Addington	116	50,837	1	500	68	31,201	1	500
Lincoln	79	217,741	4	†104,400	44	26,725	..	.....
Manitoulin	105	34,817	..	.....	89	18,867	..	.....
Middlesex	192	134,238	..	.....	89	47,907	..	.....
Muskoka	124	96,211	..	.....	57	29,043	..	.....
Nipissing	173	209,064	..	.....	94	39,939	..	.....
Norfolk	133	67,863	..	.....	103	44,768	..	.....
Northumberland & Dur	250	282,617	..	.....	135	89,569	..	.....
Ontario	147	263,554	..	.....	89	54,736	..	.....
Oxford	169	210,816	..	.....	97	110,387	..	.....
Parry Sound	127	49,495	1	1,500	61	14,002	..	.....
Peel	41	38,769	..	.....	26	22,502	..	.....
Perth	95	135,467	..	.....	37	34,356	..	.....
Peterborough	120	145,922	1	250	61	30,836	..	.....
Prescott and Russell	138	131,480	..	.....	81	52,930	..	.....
Prince Edward	97	68,050	..	.....	66	52,846	..	.....
Rainy River	111	75,224	..	.....	67	24,901	..	.....
Renfrew	141	104,590	..	.....	74	46,100	..	.....
Simcoe	300	612,617	..	.....	176	101,028	..	.....
Stormont, Dun. & Glen	173	133,810	9	6,746	116	102,553	4	2,684
Sudbury	340	(b)7,281,133	..	.....	196	83,467	..	.....
Thunder Bay	138	364,809	3	4,301	57	27,911	..	.....
Timiskaming	386	2509,684	4	98,370	188	64,210	..	.....
Victoria	70	143,189	1	10,000	49	20,634	..	.....
Waterloo	134	212,294	..	.....	29	36,076	..	.....
Welland	150	132,968	..	.....	31	21,639	..	.....
Wellington	127	120,767	..	.....	54	41,869	..	.....
Wentworth	235	375,953	..	.....	67	47,498	..	.....
York	1,383	†9,988,358	2	6,150	77	46,413	..	.....
The Province								
1917	9,252	24,978,609	43	296,116	4,265	2,321,701	17	7,290
1916	11,087	18,266,080	50	1,085,226	5,043	2,512,346	18	8,793
1915	12,010	12,432,780	49	699,942	5,178	2,579,303	14	4,056
1914	10,881	28,164,771	60	6,365,509	4,791	2,444,406	16	17,627
1913	10,190	32,442,616	49	8,485,788	4,831	2,279,301	16	4,012

* Excluding 1 Consolidated Rubber Co for \$8,000,000. † Excluding 1 Consolidated Rubber Co. for \$8,000,000.
(a) Excluding 1 Nickel Corporation for \$3,000,000. ‡ Including 43 Manufacturers for \$3,537,835.
(b) Including 19 mines for \$7,011,193. § Excluding a Pulp and Paper Co. for \$2,500,000 (trust in ventures)



155060
Ontario. Legislative Assembly
Sessional papers.
Vol. 50, pt. 7 (1918)

Gov. Doc.
Ont
L

University of Toronto
Library

DO NOT
REMOVE
THE
CARD
FROM
THIS
POCKET

Acme Library Card Pocket
Under Pat. "Ref. Index File"
Made by LIBRARY BUREAU

